THE MOTOR AGE

THE AUTOMOBILE AUTHORITY OF AMERICA

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LEADING CONTENTS

THE INTER OCEAN TOURNAMENT

THE EVENT OPENS UNAUSPICIOUSLY BUT GAINS IN INTEREST AS IT PROGRESSES—EXHIBITS ARE NOT INSTALLED ON TIME AND THE EARLIER RACES ARE UNINTERISTING —CLOSE AND EXCITING TEN-MILE EVENT REDEEMS THE FIRST DAY

The much heralded exhibition and tournament of the Chicago Inter Ocean opened at Washington Park Race Track on Tuesday morning, amid chaos. The exhibitors had been informed that they must have their exhibits in order on Monday evening, at the latest. When darkness put a close to operatons that night, there was just one booth that was any approach to complete and that was the one of The Motor Age. Many of the exhibitors were to blame for this state of affairs, but the management quite as much so.

Giving a tournament of as complicated a nature as that promoted by the Chicago newspaper, requires a deal of executive ability and a thorough knowledge of the business—for it is a business by itself. There was an evident lack of

preparation and authority to bring order out of chaos.

When Tuesday noon arrived, there was much on the grounds but little in order. Carpenters and decorators galore were wielding hammers and paint brushes and buntings. Stevadores were dragging about boxes and crates. The few visitors were treated to such a sight as might have been presented, were a mammoth auction about to take place under the auspices of some sheriff.

Tuesday a Poor Day

Tuesday was a poor day in which to see anything. It was almost night before the majority of the exhibits were in place and even then there were a number that were in a state of wild disorder, while some which were advertised to be present, were conspicuous by their absence. It was impossible to gain any definite idea of the exhibition as a whole. By the time the show was opened to the public on Wednesday morning, things were in pretty good shape. Tuesday's attendance was not more than 1,500, owing to threatening and chilly weather and lack of attention by the daily papers, other than the Inter Ocean.

Most of the contests on the track—a magnificent trotting track, but not banked sufficiently to allow the really fast vehicles to speed to their limit—lacked interest the first day, either on account of lack of entries, failure of the entrants to put in an appearance, or because some one vehicle entirely outclassed the others in the race.

Notables Not on Hand

There were eager inquiries, on the part of visitors, for Vanderbilt and Bostwick and Winton, but the last named was the only one of the trio on the grounds and he said that he came almost entirely in the hope of meeting the two famous eastern chauffeurs with their imported German and French machines. Among the spectators were a large number of out-of-town people who exhibited about equal interest in the exhibits and in the races. During Tuesday they were not backward in expressing their disgust at the state of the exhibits and the failure of the earlier races to give cause for any enthusiasm. It was unfortunate that the events scheduled for the earlier part of Tuesday afternoon, should be ones which were capable of awakening as much enthusiasm in the hollow breasts of the papier mache cigar signs that graced the track in the obstacle race, as in the more animated hearts of those who paid to enter the grounds.

Open Ten-Mile Race

But if the earlier races lacked excitement, the ten-mile event, open to all classes of vehicles, made up for it. As might have been expected, there were no starters among the advocates of electricity and there were but two steam entries, T. E. Griffin and H. S. Bisselstyn with their racing Locomobiles. Alexander Winton was on hand, with his gasolene racer and President Eddy of the Chicago Automobile Club, also in a Winton. Besides these, there were Kenneth A. Skinner with a French De Dion tricycle. Ridgeway on a similar machine, but with a smaller motor, and Albert Champion on an Orient tricycle, fitted with two Aster motors.

Standing Start

The machines were sent off from a standing start, the two Winton engines running wild, while waiting for the signal to start. When the pistol sounded, the little Locomobiles started off with a rush, leaving the other vehicles far in the rear. Winton on his racer was the next to get under headway, followed by Eddy. The tricycles were left in the rear, for the first 300 yards and their riders appeared to the crowd to be hopelessly outclassed. As they got to going, however, they began to make up ground rapidly. Skinner showed to the front of the three-wheelers for a moment, and then Champion shot ahead of him, going like the wind. The little Frenchman soon overhauled Eddy and Winton and set sail for the Locomobiles. These machines slowed perceptibly after the half-mile pole had been passed, and, rounding into the home stretch, were overtaken.

Champion in the Lead

At the end of the first mile, which was ridden in 1:44 1-5, Champion was first,

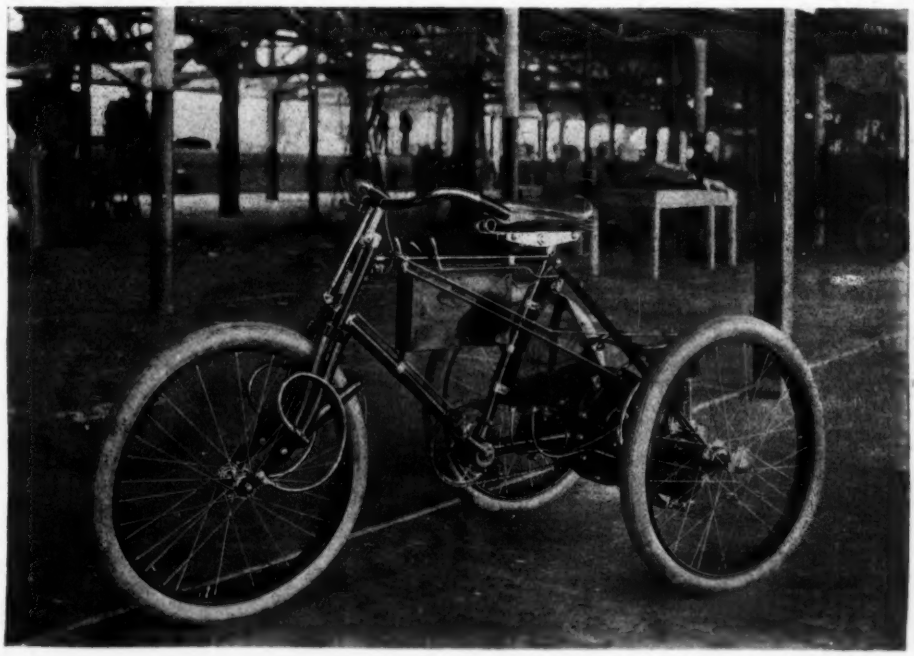
by five yards, the Loco second, Winton third, Ridgeway fourth and Skinner fifth. During the second mile, the Frenchman increased his lead. The Locomobile refused to keep to its normal gait and Winton and Skinner were having it hot and heavy, for second place, passing and repassing each other several times. At times Skinner trailed the big machine, which seemed the faster, in the face of the wind, and again showed the way to it. Crossing the tape, Winton was second, Skinner third, Ridgeway fourth, Griffin fifth and Eddy sixth. The last named was going steadily, but his machine was in too fast company, and before the end of the race was lapped.

Like a Match Race

With Champion leading by what appeared a safe margin, the interest in the event centered in the match between Winton and Skinner, who were passing and repassing each other regularly. At the end of the third mile, Champion was still in the lead, while Skinner led Winton across the tape by a margin of several yards, only to be passed on the backstretch by the Clevelander. The others were away back. Griffin stopped to make some repairs to his machine, losing half a mile by the stop, but thereafter maintained a speed about equal to that of the leaders. At four miles Champion led, Skinner was second, Winton third and Ridgeway fourth.

The Frenchman in Trouble

During the running of the fifth mile, Champion got in trouble with his machine. Coming down the home stretch at a twenty-five-mile-an-hour clip he was trying to find out what was the matter and Winton and Skinner were gaining rapidly. The Frenchman led under the wire, however, while the other two were almost a dead heat for second place, with Skinner a trifle in the lead. It was some time before Champion got his machine to going at full speed again and when he did it was too late to do him any good. Winton and Skinner were



MOTOR TRICYCLE

Made By the Cleveland Branch of the American Bicycle Co. The Background Shows a Part of the Exhibition Space as It Appeared on Monday Morning.

having it out between them, passing Champion in the first quarter of the sixth mile. The five miles were done in 7:57.

Winton Takes the Lead

Skinner led for the greater part of the sixth mile, but, coming down the home-stretch, Winton's big machine took the lead and crossed the tape ten yards in front. During the next two miles they alternated in the lead, the tricycle making the better time on the turns and on the home-stretch, where the wind was an aid to the chauffeurs, while Winton held a steady pace on the straights, but was compelled to run somewhat wide on the insufficiently banked turns. Skinner led across the tape at the end of both the seventh and eighth miles. During the ninth mile, the two continued to pass and repass each other, Winton being the first under the wire, at the end of the mile.

An Exciting Mile

Starting on the ninth mile Winton swung somewhat wide on the first turn and allowed Skinner to pass him on the pole and when the two had straightened out on the back-stretch, the tricycler was in the lead by four or five yards. Going into the wind, Winton gained and when the last half mile was reached he was in front with Skinner taking the benefit of his pace. Rounding the last turn, Winton swung a little wide, as usual, but not quite as much as previously. Coming into the home-stretch for the last time, he had a lead of five yards. Skinner was on the pole and attempted to pass, but changed his mind when he saw the big machine closing in, as it had a right to do by virtue of its lead. The tricycler then went to the outside and crept up on the big four-wheeler, inch by inch.

Winton a Winner

The crowd began cheering enthusiastically as the two thundered down the long quarter-mile stretch. Seats were a drug—except to stand on. As the two chauffeurs approached the wire, the enthusiasm knew no bounds. Skinner was gaining, but all too slowly. While the spectators held their breaths, the two dashed past the finish, Winton in the lead with Skinner's front wheel a foot ahead of his opponent's rear wheel. The tricycler lodged a protest with the judges, but it was not allowed.

Time by Miles

The time by miles and the leader at the end of each mile are shown in the following table:

Distance.	Leader.	Time.
1 mile.	Champion	1:44 2-5
2 miles.	Champion	3:14 1-5
3 miles.	Champion	4:41 1-5
4 miles.	Champion	6:18
5 miles.	Champion	7:57
6 miles.	Winton	9:33 4-5
7 miles.	Skinner	11:14
8 miles.	Skinner	12:50 1-5
9 miles.	Winton	14:25 2-5
10 miles.	Winton	16:02

Auto Out-Handicapped

Following the ten-mile race was a so-called contest between the running horse, In Debt, with a mark of 1:42 for the mile, ridden by Freemont Sloan, and Alexander Winton in his racer. The horse was supposed to go five furlongs while the auto covered a mile. As the machine came down the home-stretch for a flying start, the horse got off ahead of the pistol, adding another 150 yards to his allowance. As a natural result, the horse came in about a quarter of a mile in the lead. With a furlong allowance for the horse and a fair start, the event would have been interesting. As it was, it was a farce.

Five-Mile Tricycle Event

The five-mile tricycle race was the last event on the program and the chilly weather had driven the larger part of the spectators home. Champion, Ridgeway and Skinner were the contestants. They were given a flying start and got off in a bunch. Champion soon showed to the fore and kept in the lead for more than three miles, Skinner riding second, losing a few yards on each mile. On the fourth mile, Champion had trouble with his machine and when the tape was passed at the end of the mile, he was a fraction of a second behind Skinner. On the last mile, the Bostonian ran away from the Frenchman—or, rather, the Frenchman fell rapidly back. Skinner won in 7:32 3-5 with Champion second in 7:45 and Ridgeway third in 8:21 1-5.

The times by miles were as follows:

Distance.	Leader.	Time.
1 mile.	Champion	1:28 1-5
2 miles.	Champion	2:55 4-5
3 miles.	Champion	4:25 1-5
4 miles.	Skinner	5:57 2-5
5 miles.	Skinner	7:32 3-5

The Parade

The "grand parade for manufacturers" had just eleven vehicles in line, of which five belongs to the Hewitt-Lindstrom Motor Co. This was not for lack of vehicles on the grounds, for there were many there, but on account of the unprepared state of affairs. The first prize for the greatest number of vehicles in line, and the second for the greatest number of models, were carried off by the Hewitt-Lindstrom Motor Co., while the third prize for the best practical model was carried off by the Woods Motor Vehicle Co. with its single entry of a handsomely designed and finished delivery wagon.

One-Mile Contests

Of the three races at one mile each, for the three types of motor-vehicles, two were walk-overs and the other was practically the same. C. A. Lindstrom in a Hewitt-Lindstrom runabout, was the only entrant to show in the event for electrics. He went over the course in 2:34.

In the one-mile event for gasolene vehicles A. J. Eddy, president of the Chicago Automobile Club, in a Winton, went over the course alone in 2:19 1-5.

ALEXANDER WINTON
In His Winton Racer in Which He Won the Ten-Mile Open Race in 16:02

In the event for steam vehicles there were three contestants, two in light racing Locomobiles and one in a Milwaukee runabout of the regular road model. Of course the racing machines had things all their own way. T. E. Griffin won in 1:39, H. S. Eisselstyn was second and Jack Casper third.

Griffin who drove a racing Locomobile, which he handled with remarkable skill. O. M. Collins got second and W. A. Boal, third.

The parade for private owners brought out a slim number and was won by C. A. Lindstrom, with a Hewitt-Lindstrom electric omnibus, loaded to the guards

T. E. GRIFFIN
In His Locoracer in Which He Made an Automobile Record of 1:06.

Preparatory to the obstacle race, a score of paper mache cigar signs were set on the track, the contestants being supposed to pass between and around them. In just what direction they were to do this, neither spectators nor contestants knew and when the event was over, no one, save the judges, had the remotest idea who had won. The decision was awarded, however, to T. E. with passengers. J. Wesley Allison secured second prize.

A Mile in 1:06

During the afternoon, T. E. Griffin in his racing Locomobile, drove the machine an exhibition mile. The spectators realized that he was going fast, but did not appreciate just how fast, until the time was announced—and not even then. The mile was reeled off in exactly 1 minute

and 6 seconds. Mr. Griffin stated that he expected to show a mile in 1:02 if not in 1 minute flat, before the week was over. Nor does the speed that he made give any fair indication of the limit of the little machine, for it is impossible to round the turns at the best speed of which the vehicle is capable, and the loose surface of the track is not conducive to high speed. Moreover, there was a stiff wind blowing at the time the trial was made.

CHARLES A. LINDSTROM
In His Hewitt-Lindstrom Runabout in Which He Won the One-Mile Race for Electric Vehicles in 2:34.

Rain Delays the Events

On Tuesday night, it rained almost continuously and on Wednesday it was cloudy and threatening when it did not actually rain. This, of course, made it impossible to run any of the track events and the testing apparatus was not yet in shape for the utility test and, so all that was left for visitors to do was to wander around among the exhibits, which were a bit the worse for the storm. The betting ring in which they were installed was open at the side and has a roof that is far from rain-proof. As a consequence, there were puddles on the cement floor, limpness in the decorations, and a general look of disgust on the faces of the exhibitors. There were very few visitors.

DESCRIPTION OF EXHIBITS

As indicated in the foregoing, the exhibits at the Chicago Inter Ocean Washington Park tournament were far behind hand in getting installed and some of them showed no signs of materializing up to the time of going to press on Wednesday.

By all odds the largest exhibit was that of the Woods Motor Vehicle Co. Among

the other firms who exhibited a large number of vehicles were the Locomobile Co. of America, the Hewitt-Lindstrom Motor Co., the Mobile Co. of America, and the American Bicycle Co. The other exhibits were confined to from one to four vehicles. There were present, also, a number of firms who showed parts, tires and accessories, as well as complete vehicles.

Most of the vehicles at the exhibit have been described at length in The Motor Age and the following account is, therefore, confined to a simple announcement of what was shown, being arranged in alphabetical order, for the sake of convenient reference:

American Bicycle Co.

The American Bicycle Co. had a large space elaborately decorated in which were shown samples of self-propelled vehicles from four of their branches. The Cleveland branch contributed a gasolene tricycle of the French type, illustrated on another page. It was an apparently well constructed vehicle and was very attractive in appearance. The Rambler factory contributed a sample of the gasolene vehicle described in last week's issue of The Motor Age. The Crescent factory contributed the freak of the exhibit, a Tri-Moto, otherwise known as "Sir Harry" Lawson's gyrascope. It is a vehicle in which the single front wheel carries an air cooled gasolene motor and all the motor mechanism. The vehicle comes in the motocycle class and is geared to something like ten miles an hour. The Waverley factory contributed seven electric vehicles in various styles, all beautifully finished. They included two road wagons, one with and one without top, one break, one delivery wagon convertible into a brake, one dos-a-dos with canopy top, one runabout and one stanhope.

Baldwin Chain Co.

The Baldwin Chain Co. exhibited samples of their popular chains in a large number of sizes, suitable for automobile use. The exhibit was in charge of K. Franklin Peterson, their Chicago representative.

Buffalo Gasolene Motor Co.

The Buffalo Gasolene Motor Co. exhibited sample of one of their models of gasolene engines, the one that has proven the most popular. It is a four-cylinder, water-cooled, upright engine with a shifting spark, by which the speed can be varied to any desirable limits. This engine has been fully described in The Motor Age and its features commended as they deserve. The demand has been so great that it has been found necessary to increase the capacity of the Buffalo plant. The engine attracted much attention from mechanical men.

Canda Bros. Auto-Quadricycle Co.

The Canda Bros. Auto-Quadricycle Co., the Chicago representatives of the Canda Mfg. Co. of Cartaret, N. J., and New York City, exhibited a single sample of their Auto-Quadricycle, a vehicle of the French type, with an air cooled gasolene motor. It has a bicycle seat for the driver and pedals with which to start the machine and a comfortable seat in front for a second passenger.

Carse Bros.

Carse Bros. of Chicago exhibited their well known Avery searchlight, which they are supplying to the automobile trade. The searchlight is an acetylene lamp, fitted with a powerful reflector and gives a marvelously brilliant light. The generator is carried in the carriage with only the reflector in front, making a very neat appearance. The company also shown the Appel gas engine ignitor.

Consolidated Rubber Tire Co.

The Consolidated Rubber Tire Co. had an elaborate exhibit in which were shown their well known Kelly-Springfield solid rubber tires, in sizes suitable for the lightest "bike buggy" to the heaviest truck. The tires were shown in long strips and mounted on wheels. The company distributed the most elaborate catalogue of any of the exhibitors, entitled "A Message from Mars."

De Dion-Bouton Motorette Co.

The De Dion-Bouton Motorette Co.'s exhibit was not an extensive one but gave conclusive evidence of the practicability of the vehicles for road use, inasmuch as the two of the three shown reached Chicago after a 1,600 mile tour by road from New York, visiting all the principal cities en route. The two vehicles were a motorette and a De Dion tricycle. In addition there was the racing tricycle on which Kenneth A. Skinner won the five-mile event and on which he ran Winton so close in the ten-mile open event. The road tricycle was used by C. C. Ridgeway in the racing events.

Eastman Automobile Co.

The Eastman Automobile Co. of Cleveland exhibited three of the asbestos-lined metal automobile bodies which they are supplying to the automobile trade, as well as a steam runabout, equipped with one of those bodies. The bodies were finished in as many styles as there were samples, giving an idea of the variety of finishes that can be given to them. In appearance they do not differ

from the wood bodies generally used, but they have the advantages of protecting the users of vehicles from the heat of the engine, of preventing waste by the radiation of the heat and of being indestructible by fire, a feature that will be appreciated by those who have had their vehicle bodies ruined by the accidental firing of the gasolene fuel.

Empire Motor Works

The Empire Motor Works of Buffalo exhibited a single sample of their transmission gear for gasolene vehicles. This gear has been fully described in these columns. It is very simple and compact and has found great favor with manufacturers.

Helios-Upton Co.

The Helios-Upton Co., the well known manufacturers of storage batteries, showed a number of their accumulators, assembled in different ways.

Hewitt-Lindstrom Motor Co.

The Hewitt-Lindstrom Motor Co. exhibited five models in their space, all of them different. They were beautifully finished and were designed for utility as well as for looks, as was demonstrated by their taking four of the five prizes awarded to electric vehicles the first day —two in the manufacturer's parade, one in the race for electric vehicles and one for utility. The models consisted of one runabout, one stanhope, one brake, one delivery wagon and one omnibus. The huge omnibus was much in evidence on the track, being used to carry its full quota of passengers to demonstrate its usefulness. The company showed its progressiveness by installing its own charging plant, that its vehicles might at all times be ready to show their paces. One feature that attracted general comment and approbation was the driving of the vehicles by Mr. Lindstrom's little thirteen-year-old daughter.

Locomobile Co. of America

The Locomobile Co. of America had a large space tastefully decorated in which they exhibited seven samples of their standard steam Locomobile, a stanhope model without top, two of the same vehicles with victoria tops, one Locosurrey, a four passenger vehicle without top and two Locoracers. The last named were used in the track races and showed their steam to the other contestants in all the events in which they were entered. It was in one of these racers that T. E. Griffin made a mile in the remarkable time of 1:06, the fastest American record for any sort of vehicle.

Milwaukee Automobile Co.

The Milwaukee Automobile Co. exhibited a single sample of their staunchly made steam runabout which was often in commission. In addition they showed their motor-vehicle frame of which they are selling a large number to the trade, as well as differential gears, gasolene tanks and other parts with which they supply the trade.

William P. Miller's Sons.

William P. Miller's Sons of Chicago showed their line of lubricants, adapted to automobile use.

Mobile Co. of America

The Mobile Co. of America has a large exhibition space in which were shown nine of its steam Mobiles of the runabout pattern. They were all alike except for the finish which was of several varieties.

Motsinger Device Mfg. Co.

The Motsinger Device Mfg. Co. of Pendleton, Ind., exhibited their gas engine sparking device, the Auto-Sparker. This device is a compact electric generator, actuated by the flywheel of the engine to which it is attached. A friction wheel on the generator is in contact with the flywheel of the engine and acquires a sufficient speed, when the engine is started by hand, to furnish the spark. As the speed of the engine increases an automatic device withdraws the friction wheel of the sparker from contact with the flywheel, preventing the burning out of the generator and maintaining a spark of constant intensity.

Ohio Automobile Co.

The Ohio Automobile Co., the outgrowth of the automobile department of the New York & Ohio Co. of Warren, Ohio, showed two of their Packard gasolene carriages, both of which have been described at length in the columns of The Motor Age. One was a carriage of the stanhope pattern, equipped with an eight-horsepower motor and the other a similar vehicle, equipped with a twelve-horsepower motor and wheel steering, designed for high speeds on the road. Both are fitted with a detachable seat in the rear and are capable of carrying five passengers.

St. Louis Motor Carriage Co.

The St. Louis Motor Carriage Co. exhibited but two vehicles, but these two were very busy. On the sign that was over the entrance to the exhibit, there was, in addition to the name of the firm, the legend, "Rigs that Run." The legend was justified, inasmuch as the two vehicles at the show were driven from St. Louis to Chicago over the notoriously bad Illinois roads. One of the vehicles was a spindle seat road wagon, and the other a stanhope. These vehicles were in their exhibition space only a part of the time, as the exhibitors seemed to believe that they could better advertise

their merits by taking the curious for rides in them, than in giving them merely the opportunity to admire the lines of the carriages.

Strong & Rogers

Strong & Rogers of Cleveland exhibited a single electric vehicle of stanhope pattern. It was notable as being, by common acknowledgment, the handsomest vehicle in the exhibition. It departed somewhat from the ordinary carriage lines and was beautifully finished and trimmed.

U. S. Ball Bearing Co.

The United States Ball Bearing Co. exhibits several specimens of their well known anti-friction devices through their Chicago representative, K. Franklin Peterson.

J. O. Wells Co.

The J. O. Wells Co. of Des Moines, Iowa, exhibited folding carriage tops, which they supply to the carriage and automobile trade.

Woods Motor Vehicle Co.

The exhibit of the Woods Motor Vehicle Co. covered a greater amount of space than the exhibit of any other one firm, and included a greater number of vehicles, which were shown in a large number of styles. Among them were the following: One landau, one brake, one stanhope, one stanhope with rumble, one coupe, one broughm cab, one extension broughm, one runabout, two victorias, one physician's coupe, one station wagon, four delivery wagons, one hansom cab and two United States mail wagons. The vehicles were all elaborately finished and of the kind that would appeal to purchasers who are intent on having stylish turnouts. The physician's coupe is a novelty and should appeal to the medical fraternity. The station wagon is another novelty. It is a small edition of an omnibus, beautifully finished and trimmed in black and red. It is unfortunate, that, with such an extensive exhibit, the exhibitors should not have elected to have shown their vehicles in action more frequently. One delivery wagon was the only one seen on the track on Monday, but that one took a prize.

BOSTWICK THE WINNER AT GUTTENBURG

New York, Sept. 18.—Albert Bostwick and his record breaking DeKnyff Panhard machine were the heroes at the automobile meet at Guttenburg today. The young millionaire made good in approved style by winning the ten-mile championship for all classes and the five-mile race open for gasolene propelled vehicles. He won the latter event in 7:43, beating Vanderbilt's American record of 8:53 made at Newport. In this race Bostwick's only competitor was De Wolfe Bishop with a Panhard car. Bostwick's machine is a 24-horsepower vehicle and Bishop's is a lighter one, developing 16 horsepower. Bostwick won easily by over a half-mile.

In the ten-mile championship race Riker led the first mile with one of his electric machines by a margin of fifty yards, covering the distance in 1:46. Breakage of the armature band of his motor soon after caused his withdrawal from the track. Bostwick was at that time in advance of Bishop by another fifty yards. Hibbard, who had entered the event with a Locomobile, was stranded at the start by the breakage of the driving chain. Bostwick at the finish had within 100 yards of a mile advance over Bishop. His total time was 15:09 1-5. The last mile was the fastest of the ten, it having been covered in 1:27 4-5.

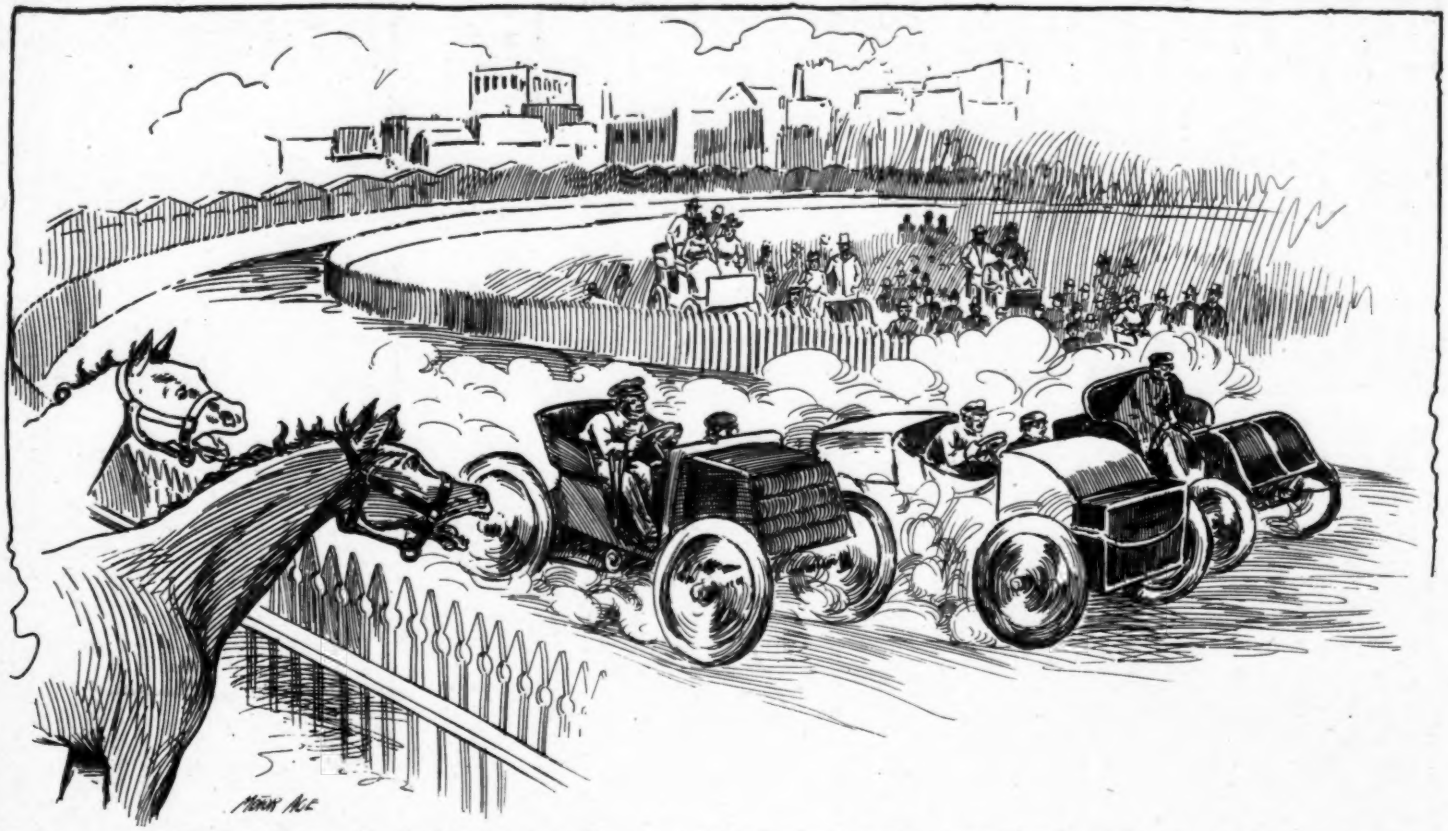
The five-mile race for gasolene vehicles weighing under 1,000 pounds was won handily by C. J. Fields with a quadricycle in 11:43 3-5. Craven with a De Dion quadricycle ran second and Louvegnez with a Motorette, third.

Henshaw captured the five-mile tricycle race with a De Dion machine in 8:24 3-5. The five-mile for electric machines was a walkover for Riker who won with a mile lead in 8:16 1-5. The five-mile contest for Locomobiles was won by W. J. Stewart of Newark by the narrow margin of three feet over W. L. Hibbard of Bridgeport. S. Huston of New York ran third. The time was 11:48. Walsh with a machine made by the Automobile Co. of America was first in 10:10 2-5 in the five-mile for American-made gasolene vehicles. Nagel with a machine of the same make ran second and Bostwick, this time mounted in a Winton carriage, was third.

Stockbridge of Newark managed with his Locomobile to win the brake test by stopping his machine within six feet after the pistol shot. Henshaw and his quadricycle secured second and Bishop in his Panhard was third.

Five thousand spectators viewed the preliminary parade of twenty-eight vehicles, including Locomobiles, Waverleys, machines of the Automobile Co. of America and the American Electric Vehicle Co., Wintons, Panhards, Motorettes, Orient tricycles, Lancomobiles and Knickerbockers. Barwise in an American Electric Vehicle Co.'s golf trap was awarded the prize for best appearance and Mr. Goodman and Miss Meuken in a Motorette captured the prize for best decoration. Bishop with his Panhard was able to win the obstacle steering contest.

AT WASHINGTON PARK



LIEUTENANT GIBSON: "By the Great Tod Sloan, Sidney Lucas! Is n't this enough to make a poor horse wish to cast his last shoe?"

CONSTRUCTION OF A GASOLENE MOTOR

THE PRACTICAL CONSTRUCTION OF A FOUR-HORSE-POWER AUTOMOBILE GASOLENE MOTOR WITH TWO OPPOSED CYLINDERS, ACCOMPANIED BY WORKING DRAWINGS.

BY L. ELLIOTT BROOKES

PART V.

The motor is now ready to assemble, but before assembling, every individual piece (except the hard rubber or vulcanized fiber parts) should be placed in a large tin pan, as many at a time as possible, and thoroughly washed in gasolene to remove all dirt or grit. Wipe them dry with some clean old linen rags. Do not use waste, as the ravelings catch on the castings and are liable to get where they are not wanted—inside the motor or on some of the bearings. Having done this, wipe over all bright or finished faces with a greasy rag to prevent rusting. Then select an empty place on the bench large enough to hold all the parts without crowding, spreading some new clean sheets of heavy wrapping paper on the bench before placing the castings on it.

First take the cover off the crank chamber. Then unbolt the cylinders and lay to one side and clean out the inside of the crank chamber very carefully, using a wire scratch brush, if possible, to remove all grit and dirt that may have adhered to the rough or unfinished portions of the interior of the crank chamber. After having cleaned it out thoroughly, put the crank shaft in the bearing opposite to the cover opening. Be sure you have the right end, which is the end on which the cam gear pinion is to go. Put the cover in place and secure it firmly in place by means of the six ⅜-inch semi-finished nuts.

Use nothing but spanner wrenches upon the nuts and bolt heads in putting them in place on their respective parts, as, if a monkey wrench is used, the corners of the nuts and heads of the screws are sure to become battered, and the motor will look like a piece of second-hand machinery before it is finished. A set of these spanner wrenches, single or double-ended, can be bought at any machinist or engineers' supply house very cheap, and can be got either ready finished to size and hardened, or in the rough. In the latter case they can be finished by hand or on a milling machine very quickly.

Next take the connecting rods, one at a time. Take the 1-32-inch liners which go under the caps, and, with a little thick shellac varnish, fasten them to the caps in the proper place, and allow them to dry thoroughly before using.

While these are drying put on the flywheel and fasten it securely to the shaft with the set screw. Turn the crank shaft around, so that the jaws are horizontal. Then take one of the connecting rods, being careful to have the oil holes on the top, and put it into the crank chamber in the end hole farthest from the pin on which it is destined to go. Hold it in place on the pin with one hand, and with the other put the cap on over the crank pin, also with the oil hole right side up. Now take the ⅜-inch, philister head screws and screw them firmly in place with a screw driver. Then reverse the position of the crank so that the crank pin is moved over to the other end of the crank chamber, and the connecting rod is almost out of the crank chamber. In this position the check nuts (which are 5-16-inch hexagon nuts, tapped out to ⅜-inch, 16-thread) can be put in place on the ends of the ⅜-inch philister head screws. Screw up with a small spanner wrench as tightly as possible. Then put the split pins in the holes in the ends of the ⅜-inch, philister head screws, and, with the end of a chisel or screw driver, spring open the points of the split pins so as to prevent them from coming out. Do not on any account omit these split pins, as, if the check nuts should work loose, which is at least possible, there is sure to be trouble—although, with this form of construction,

viz., tapping the screws into the connecting rod and putting check nuts on the back (instead of using studs in front, in the cap, with two nuts), the writer has never had a case of a loose nut, while with the other form the nuts worked loose quite often, and pounding of the connecting rod ensued, which would soon have resulted in more serious damage, including, perhaps, a broken crank chamber, if the trouble had not promptly been remedied.

After the connecting rods are properly attached to their respective crank pins, the pistons should be put onto the wrist pin ends of the connecting rods. It is first necessary, however, to put the rings onto the pistons in their proper grooves, as marked. To put on the first and third ring is an easy matter, but to put on the middle ring is quite a little trick if one does not know how. Take three strips of fairly heavy tin, about ¼ of an inch wide and about 1½ inches long, and bend them like a letter L. Set the piston on the bench with the solid end up and hang the three strips of tin around the top edge of the piston. Now take the ring in both hands, and, with the forefingers and thumbs, spring it open just enough to go on the piston over the tins. Do not spring it open more than just enough, or it may result in breaking the ring in two. The ring can now be pushed down over the tin strips, past the first groove, and will snap into its proper place nicely. The strips can then be removed and the first ring put on from the same end without trouble. The third ring can be put on in the same manner from the other end of the piston. Do not attempt to get the middle ring in place by trying to stretch it enough to pass the first groove, or to put it on after the first ring is in place, as broken rings are almost sure to be the result, besides loss of time and a ruffled temper. If the middle ring is put on in the manner described no trouble will be experienced, and no rings broken.

After putting the rings in place, the pistons are ready to be attached to the connecting rods. Put the piston on over the end of the connecting rod, taking care to have the oil hole on top, and put the wrist pin in place through the piston and the end of the connecting rod. Screw it in tightly. A T-handled screw driver should be used for this purpose. If one is not handy, use an ordinary screw driver, using a monkey wrench on the blade to get a good grip.

Now clean off the pistons perfectly. Use the palm of the hand in preference to waste or rags, and be sure to get the pistons entirely free from dirt or grit. Even the smallest particle will tend to produce a cut cylinder and cause endless annoyance before the source of trouble is discovered.

The cylinders can now be put on over the pistons. Care must be taken to see that they, also, are absolutely clean and free from grit or dirt inside, and well oiled. The help of a second person is necessary to put the cylinders in place.

Let the assistant hold the cylinder in the right position, while the builder takes the piston in one hand and enters it into the flared mouth of the cylinder. After the end of the piston has entered the cylinder, the builder can use both hands to slightly compress the piston rings, while the assistant pushes the cylinder over the piston and up to place on the studs, in the end of the crank chamber. After both cylinders are put in place in this manner, the flywheel should be turned around by hand two or three times, to see that there is no binding anywhere.

Next in order are the cylinder heads, or covers. But before they are put in place the packings must be got ready. Use what is known to the trade as 1-32-inch sheet asbestos, which is, in reality, nearly 1-16 of an inch thick. Cut off two pieces, seven inches square, and punch out the holes through which pass the ½-inch studs. Next take some of Le Page's liquid glue, or Major's cement (do not use common glue or shellac varnish, as they will not answer the purpose) wipe off the ends of the cylinders carefully and see that they are entirely free from grease or dirt, and then apply the glue or cement thickly all over the ends of the cylinders. Allow it to dry for five or six minutes. Then put on the

cylinder covers and bolt them securely in place, but not so tightly as to reduce the packing to its minimum thickness.

Allow the packing to stay this way for at least ten or twelve hours, so as to thoroughly dry. In the same manner the packings for the admission valve and exhaust valve chambers, and the inspection hole covers should be prepared. In these cases they are to be glued or cemented to the explosion chamber portions of the cylinder heads, or covers, and not to the valve chambers themselves. Cut out pieces of the same thickness of asbestos large enough to overhang the face of the valve chamber seats all around, apply the glue or cement as before, and bolt the chambers in place firmly, but not too tightly. Then, when they have been allowed to dry the proper length of time, as before stated, the surplus asbestos may be trimmed off, when the cylinder head and valve chambers are removed from their respective places.

To trim off the superfluous asbestos, use a small hammer with a flat on one end of the head and a small ball on the other. With the flat end, tap on the asbestos all around the edges of the castings, sharply, but not too heavily. The surplus asbestos will in this manner be readily removed. This method is better than the use of a knife or shears, as asbestos is extremely liable to fray apart and a piece is liable to come off just where it is most needed. The large hole in the end of the cylinder and the water jacket openings can then be opened in the same manner with the round or ball end of the hammer, and also the openings in the explosion chambers for the admission and exhaust valves. Care should be taken not to strike with the hammer on the portion of the packing which forms the joint.

Having fitted the packings properly, take a little good clean machine or lard oil and cover the surface of the packings well. When thoroughly soaked, apply a plentiful supply of Dixon's flake graphite to their outer surfaces and rub it in well with the fingers, taking care, however, not to abrase the surfaces of the packings.

The small V-grooves on the cylinder head and on the flanged faces of the admission and exhaust valve chambers will, with the asbestos, form a perfect joint. These grooves should not under any circumstances be left out, unless leaky cylinders and valve chambers are desired. The cylinder cover, or head, can now be put in place.

Before putting on the valve chambers, the valve spindles should be fitted into place and the valves ground into their seats with tripoli and water, to secure an absolutely accurate seating. Then the springs, spring caps, nuts and split pins should be fitted onto the valve spindles. The split pins must, on no account, be omitted, as the nuts are sure to work off otherwise. Then the valve chambers can be put in place.

Next screw the cam gear studs tightly in place and put on the exhaust cam sleeves and gears. These gears, as before stated, should be so located on the exhaust cam sleeve that some one tooth on each gear is exactly in line with a point in the center of the high portion of the exhaust cam, so as to make them exactly alike. Then put the pinion in its place on the crank shaft just far enough up so that it will not quite mesh with the teeth of the cam gears. Now turn the crank shaft, by means of the fly wheel, until the crank pin jaws are in a vertical position, viz., one pin up and the other down. Then set the exhaust cams so that the center of the high parts are exactly horizontal and both pointing in the same direction. Then push the pinion in, on the crank shaft, into mesh with the gears and up to its shoulder on the crank shaft.

The gear cases can now be put in place and screwed on with 5-16-inch, philister-head screws, as shown. To put on the plunger rods and guides, it is necessary to remove the exhaust valve chambers. These may be temporarily held in place, while setting the exhaust valves, with only two bolts each.

Now turn the fly wheel in the opposite direction to that in which the motor is designed to rotate, until the pistons are at the outward ends of their strokes. This can be told readily by the position of the keys, on either side

of the crank shaft, if they are cut, as they should be, in the position shown in the drawings. At this point the exhaust valve on one end should be just closed and the plunger rod just touching it. If this is not the case, the pinion must be drawn out of mesh with the cam gears, and the crank shaft moved the right amount in one direction or the other, as the case may require, the pinion put back again in place, and the operation, as before described, repeated. A second setting will generally bring it right. Care must be taken, in drawing the pinion out of mesh, not to disturb the cam gears, as the setting of one valve sets both. After this is done, it is a good plan to turn the fly wheel around until one of the exhaust valves has just closed and the plunger rod is away just sufficient to permit a piece of thin cardboard or tin to be put freely between the end of the spindle and the plunger rod. Then put a mark on the flywheel with a piece of chalk and another in the crank chamber or the side of the cylinder, in line with it. This done, give the flywheel one complete revolution, when the valve, spindle and plunger rod on the other end of the motor should have precisely the same position as the one just tested. If this be not the case, the pinion must be drawn out of mesh and the cam gear on this side reset until it is right.

The back or rear portions of the ignition cases can now be put in place on the shoulder, around the hole through which the exhaust cam sleeve projects. Fasten them in place with the holding-down screws, put the rocker bar in place, on the ends of the upper studs, at the back of the ignition cases (which project through for this purpose), put on the washers and put the split pins in their holes.

It is next in order to adjust the ignition timing device. If it is desired to run the motor right-handed from this side, viz., in the direction of the hands of a clock, the contact makers must be set on the left-hand side of the insulating blocks, and the connections made to the insulated binding posts, as shown in the drawings. But first set the ignition devices central—or, rather, in a vertical position, as shown in Fig. 1.

Before adjusting the ignition mechanism, it will be well to decide in what manner the jump spark is to be used, as there are three different methods.

The first is by having the induction coil fitted with a trembler and a condenser, in continuous operation. The spark is made by using the cam and contact makers to close the secondary circuit, to produce the spark inside the explosion chamber. This method is not advocated by the writer, as the extremely high voltage of the secondary circuit produces a long-drawn-out arc, between the cam and contact makers, on breaking the circuit, and also quite an arc on closing the circuit, thus producing a very irregular action of the sparking points, and, further, causing the contact makers and cam to become very badly abraded from this action, even to the extent of fusing them together, if left on closed circuit for even a brief period of time.

The second method is that of using a similar induction coil as in the first case, with trembler and condenser, and making and breaking the primary circuit through the action of the cam and contact makers. This gives the most satisfactory spark of all, but will require a little more attention than the third form. The writer's experience favors the use of the Splitdorf induction coil, with trembler, as giving the best satisfaction of any that has come to his notice, when this second method is employed.

The third form has a plain induction coil with primary and secondary windings, but without a trembler. This will give only one spark, and that only at the instant of breaking the primary circuit. Moreover, the spark is a very small one, so that the sparking points in the explosion chamber must be very close together to get good results.

The second form—the one which the writer prefers—will give a stream of large sparks of great intensity as long as the primary circuit is closed by the cam and contact maker, but the trembler will need to be cleaned and adjusted

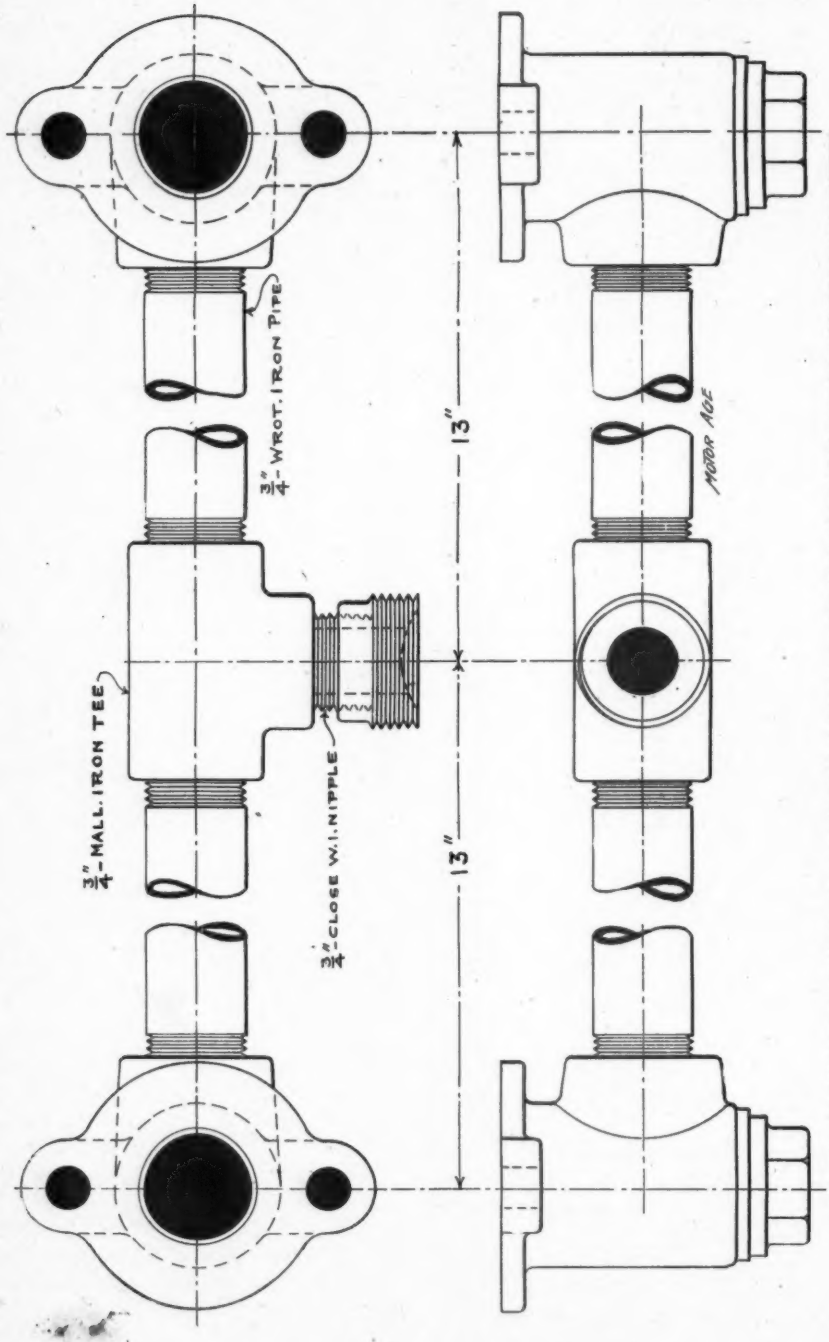


FIG. 75.—PLAN AND ELEVATION OF ADMISSION VALVES, WITH PIPES AND CONNECTIONS TO THE CARBURETER.

occasionally, as the platinum contact points corrode and wear. The adjustment for this second method will first be described and then that for the third, or single-spark adjustment, as either form can be used with this motor by simply adjusting the cam to the proper position.

For the second method, set the crank shaft so that the pistons are at the end of the outward stroke. This can be done, as before stated, by noting the position of the keys in the crank shaft. Watch the exhaust valves to see which one is just closing during this period. Having ascertained this fact, put the ignition cam on the exhaust cam sleeve of the other cylinder, and locate it so that the high part of the cam is about ¼ of an inch past the point of contact of the contact makers, in the direction of rotation. Tighten up the set screws firmly, and then turn the fly wheel round just one revolution, and put the other ignition cam in place and in the same manner. The reason for setting the cam ¼ of an inch ahead, is that at extremely high speeds, the induction coil seems to lag a little, and needs a little extra time for the magnetic flux in the core to reach its maximum value.

To set the cam for the third method of producing the spark, viz., for a single spark, the crank shaft and pistons must be set as before described, with the ignition cases vertical. Then set the ignition cam on the side opposite to the one which has just closed its exhaust valve, so that the ignition cam and contact makers are apart the thickness of a sheet of writing paper. The fly wheel is then turned one complete revolution and the other ignition cam set in the same manner.

Now put the washers and nuts on the ends of the studs, put on the ignition case covers, and fasten them in place with the thumb nuts.

Before putting the sparking plugs in place, put a little of Dixon's smear grease on the thread. This will make a perfect joint and at the same time prevent them from sticking, a frequent trouble with sparking plugs, especially if they have not been taken out for examination and cleaning for some time. This is caused by the corrosive action of the exhaust gases. The only relief known to the writer for this trouble is the use of this Dixon compound.

The compression release cocks can now be put in the cylinder covers. Use lever-handled cocks in preference to what are known as bib or tee-handled, as they can be made to fit much tighter, and still be opened easily, on account of the greater length of the handles.

Use pressure, sight-feed, glass-body lubricators for the cylinders, holding not less than three ounces to each cup. These are specially made for gas engine work. The writer prefers Lukenheimer's pressure lubricators to any other. On no account must ordinary steam engine lubricators be used, as they will not work satisfactorily and probably not at all. Do not make the mistake so many people do, of sticking on compression grease cups, which are only intended for lubricating line shafting or work of that kind. Use the best make of pressure, sight-feed, glass-body lubricator that can be got, if good results are desired.

A ⅜-inch pipe plug should go into the hole in the top of the crank chamber, and a ⅜-inch, square-head cock in the bottom hole. Do not use a lever or tee-handle cock, as either will get loose, and the oil will leak out of the crank chamber, and badly cut crank pins and bearings may be the result. Before the engine is started the plug in the top should be removed and about a pint of heavy-bodied lubricating oil poured into the crank chamber.

Use solid brass grease cups of about 1¼-inch outside diameter, with ¼-inch pipe tap on the shank, for the crank shaft bearings. These should be filled with solid grease. They are emergency oilers, coming into play only in case the crank shaft bearings should get overheated, as, under ordinary conditions, the oil in the crank chamber will keep the crank shaft bearings thoroughly lubricated. Nevertheless, these solid grease cups should be put on, so that no chances need be taken.

Fig. 75 shows a plan view and side elevation of the admission valves, with

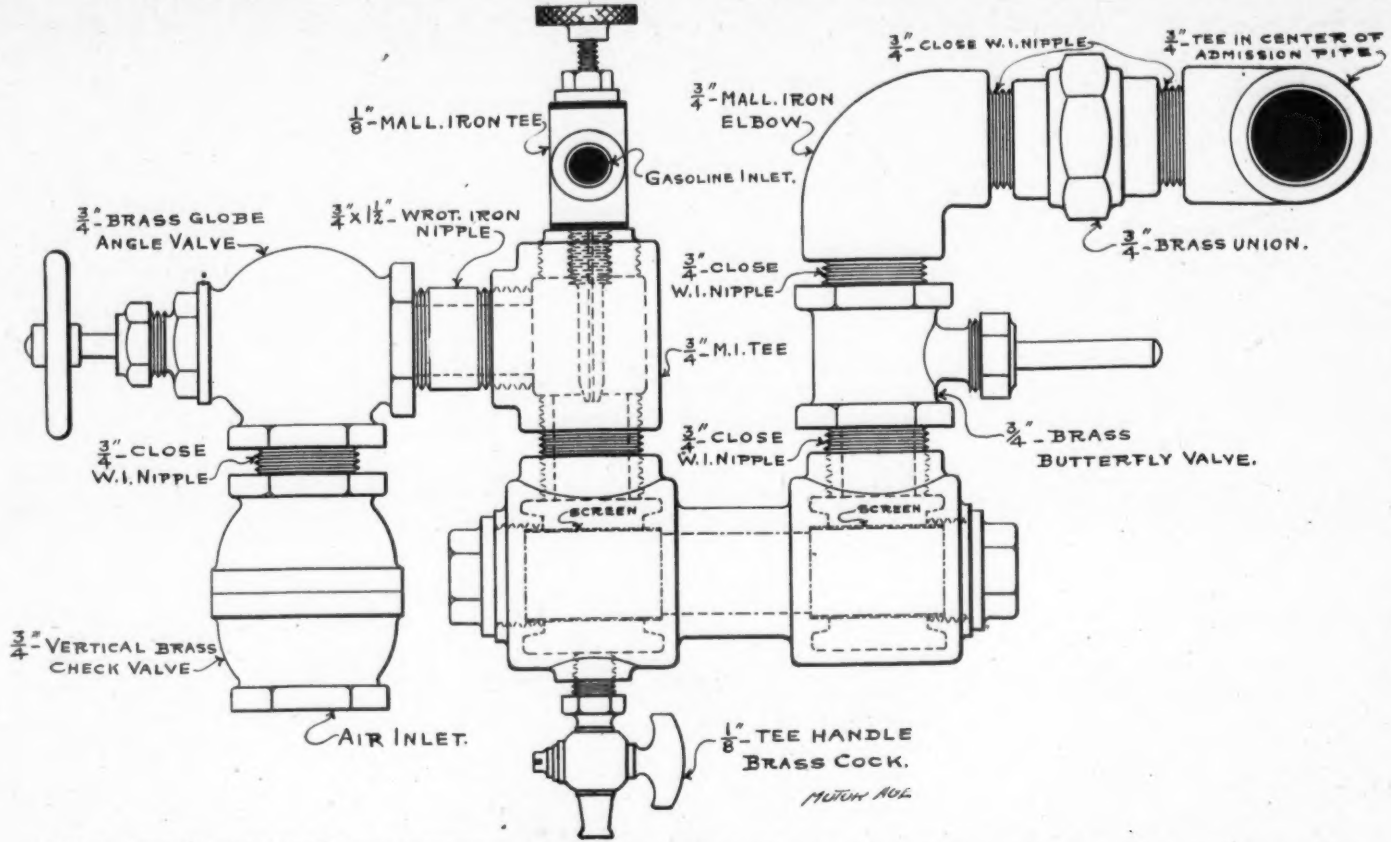


FIG. 76.—SIDE ELEVATION OF THE CARBURETER (COMPLETE), SHOWING THE AIR AND GAS REGULATION AND THE BUTTERFLY VALVE FOR CONTROLLING THE SPEED OF THE MOTOR.

pipe connections, and female portion of the ¾-inch brass union, which connects the admission pipe to the carbureter. After fitting up nicely to the proper centers, as shown in the drawings, the joints should be sweated with good, hard solder, using a Bunsen burner for this purpose, and taking care to keep the flame away from the valve seats.

The carbureter is shown in Fig. 76, connected to the admission pipes by the ¾-inch brass union. As shown, it is connected up in a straight line, but it may be swung around at the nipple under the butterfly valve, into a position at a right angle to the one shown, if so desired, thus making it parallel with the motor and admission pipes, or the carbureter chamber may be left in the position shown and the air-regulating and vertical check valves swung round in the same manner. This must be decided upon before soldering up the joints, which should be done with this mechanism, the same as with the admission valves and pipes. Do not put any red or white lead, or, in fact, anything, upon the joints, but make them tight screwing-up fits, and solder, using a Bunsen burner to sweat them together.

Fig. 77 shows the carbureting chamber. This should be made of brass and a very neat pattern with core box is required for it. Hold in a lathe chuck by one end and cut the 1⅛-inch, 16-thread, in the hole. Then take a plug of about 1¼-inch diameter, hold firmly in a lathe chuck, and cut a 1⅛-inch, 16-thread upon it, leaving a square shoulder, and undercutting the thread next to the shoulder. Screw the end of the carbureting chamber, already threaded, upon this plug,

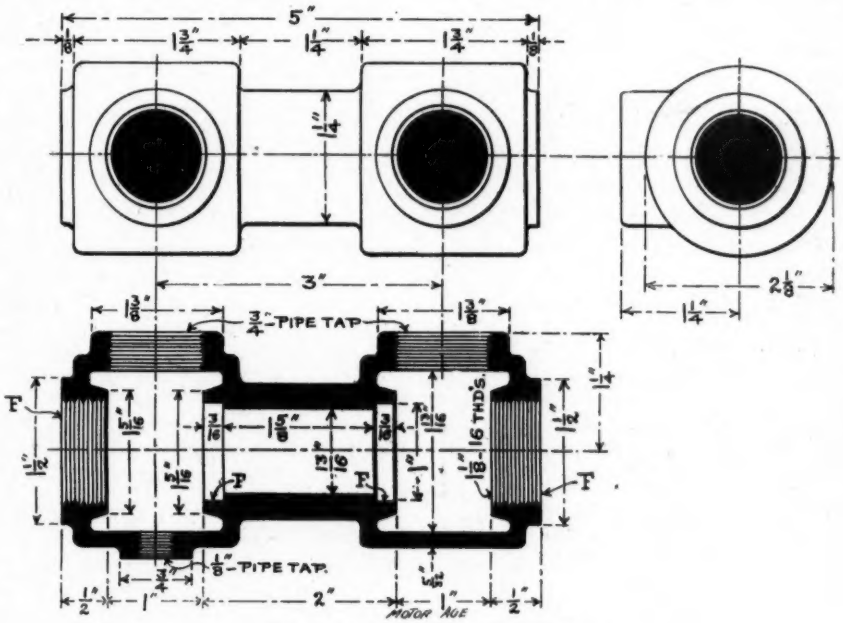


FIG. 77—CARBURETOR CHAMBER.
1—Brass.

and finish the other end by cutting the 1⅛-inch, 16-thread, and facing off the end, making the over-all length of the chamber to the figures given in the drawing. Then tap out the two ¾-inch pipe tap holes, as well as the ⅛-inch pipe tap in the bottom.

The two small plugs, or taps, shown in Fig. 78 can be finished in a lathe chuck very easily, leaving the hexagon portion rough. The needle valve seat shown in Fig. 79 is made from a ⅛-inch brass tee. These tees usually come with ribs of brass flanges around the openings, but these ribs should be filed off,

so as to make a neat-looking job, although they may be left on if desired. A small bushing made from a ⅛-inch brass pipe plug is screwed on the top

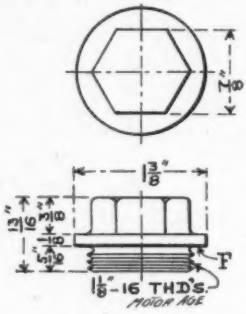


Fig. 78.—Cap.
2—Brass.

and faced off, as shown. A brass tip made from ½-inch brass rod is screwed into the other end, as shown, after having the 4-10-inch, 27-thread cut upon it. This is ⅛-inch standard pipe tap size. After completing this part of the job, hold in a chuck by the tip and run a drill the proper size for No. 10, 32-thread into the small bushing opposite the tip. Before these operations are performed the tip and bushing must be sweated in place securely. Then take a drill the

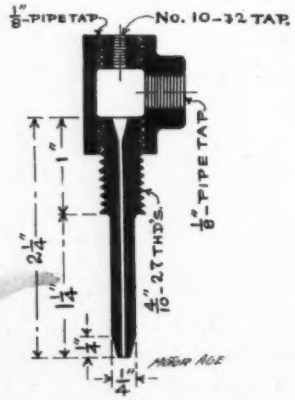


Fig. 79.—Needle Valve Seat.
1—Brass and Brass Tip.

same size as the tapping drill for the No. 10, 32-thread, and grind it to the proper angle for the point of the valve, which is 30 degrees. Run this in the hole previously drilled through the bushing, and into the small hole in the center of the tip (which hole should be put in the tip at the time the 4-10-inch, 27-thread is cut). This hole should be about a No. 58 to 60 drill. Then make the seat for the valve. The lathe should be run at the highest possible speed while reaming out this seat, so as to have no chatters in it.

Fig. 80 shows the needle valve spindle. This should be made from a piece of Stubbs steel of the proper size, the No. 10, 32-thread cut upon it, the point carefully made, and the brass head made and knurled upon its edges, tapped out, screwed in place on the spindle and sweated on with a drop of solder to make it stay in place.

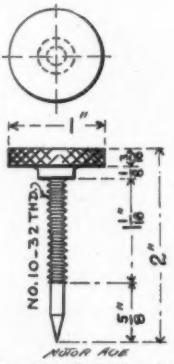


Fig. 80.—Needle Valve Spindle.
1—Steel and Brass.

Fig. 81 shows the ¾-inch malleable iron tee, with the ¾-inch brass pipe plug screwed in place, cut off to figures, as shown, and afterwards sweated in place. This is then tapped out for ⅛-inch pipe tap, as shown, to fit the 4-10-inch, 27-thread on the tip of the valve seat, which is to be screwed in here, using the lead washer shown in Fig. 82, with the large hole in it. This hole should, however, be a snug fit, so that it has to be screwed into place to the shoulder at the end of the projecting thread on the tip of the valve seat.

In connection with the above, the writer would suggest the use of the Crane Co.'s fittings, such as cocks, check and globe valves, elbows, tees, etc., as being of the neatest design and occupying less room than any other make.

Fig. 83 shows the screens which go into the chambered recesses, in each end

of the carbureter chamber. They are held in place by the plugs or caps (Fig. 78). They should be of about 24-mesh

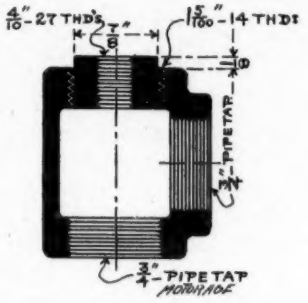


Fig. 81.—Tee.
1—Malleable Iron.

brass wire, and should be carefully soldered into a tube, as shown, and should be a nice fit in the 1-inch recesses, but not so tight as to have to be forced in, as this might result in collapsing the tube. After the carbureter parts are all finished they can be assembled in connection with the pipe fittings and valves

Fig. 82.—Washers.
1 each—Lead.

shown in Fig. 76 in the desired position, viz., as shown, or turned parellel to the admission pipe.

Cut a washer as shown in Fig. 84 from a piece of 5/8-inch rod steel. This is to go on top of the lead washer with the small hole, shown in Fig. 82, to prevent the corners of the lock nut on the No. 10, 32-thread, on the valve spindle, from cutting the lead washer.

In adjusting the carbureter, open the 1/8-inch cock in the bottom. Then turn on the gasolene just a little, so that three or four drops per minute flow from the cock. Next, having the globe valve first entirely closed, open it one or two turns, and then close the battery switch and give the motor two or three turns, by means of the starting lever, with the compression release cocks open. First, however, set the ignition timing mechanism so that the spark will take place after the pistons have just passed the dead center at the outward end of the strokes, so as to preclude any back kick. If the mixture is right, a stream of slightly blue vapor will come out of the compression release cocks, first at one end and then at the other, and the motor will start readily. If, however, a heavy white smoke, with a pungent

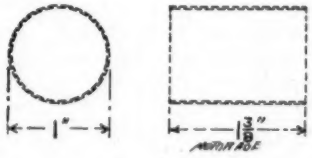


Fig. 83.—Screen.
2—Brass Wire, 24-Mesh.

odor, comes out, the mixture is too strong, and the globe valve should be given, say, another half turn. If the mixture is either entirely too strong, or entirely too weak, the charge will not fire. So it is best to set the air and gasolene valves as indicated, with the gasolene valve set for the largest charge

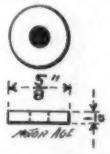


Fig. 84.—Washer.
1—Steel.

required, and the air valve almost closed. If gasolene should drip from the cock after the motor is started, ease off the gasolene a trifle until the dripping stops, and then shut the cock.

LIGHT ELECTRIC RUNABOUT

A CLEVELAND MAN PRODUCES AN ELECTRIC VEHICLE WHICH WEIGHS ONLY 500 POUNDS—HAS BATTERIES THAT WEIGH BUT 186 POUNDS—CAN TRAVEL THIRTY MILES ON ONE CHARGE

For more than two years, Walter Baker of Cleveland, well known as the inventor of the Baker ball bearing for carriages and automobiles, has been experimenting with a view to producing a light electric runabout. It was his opinion that by reducing the size of the vehicle, the weight of the motor, and, as much as possible, the weight of the battery, such a carriage might be built which should be sufficiently strong to stand road use and give a reasonable radius of travel. Mr. Baker built several such vehicles before striking the happy medium and it is claimed that the carriage which is illustrated herewith answers the demand for a light runabout for city use. The Baker Motor Vehicle Co., organized several months ago to manufacture these vehicles, has thoroughly tested the practicability of the machines, and, having built a number, is now prepared to make immediate deliveries.

Description of Vehicle

The superiority of the electric vehicle from the point of simplicity of operation has long been recognized and it has been the aim of the Baker company to make this vehicle so simple that a mere novice could use it with but very little in the way of instruction; it makes an especially attractive vehicle for lady's use and with this in view will be furnished with a low phaeton body instead of the piano box body illustrated, if desired. The weight of the vehicle complete in either style is less than 500 pounds. The batteries weigh but 186 pounds and although the radius of action is not so great as in a vehicle supplied with batteries of several times that weight, yet thirty miles on one charge has been made repeatedly and a radius of twenty miles over all kinds of roads is claimed by the company.

The battery consists of ten cells of forty-five ampere hours each, at 20 volt. The motor is of special design, expending ¾ horsepower under normal load and capable of heavy overload. Numerous hill climbing tests have shown it of sufficient torque to surmount grades which would stall many electric vehicles. Twenty percent grades have been made frequently without difficulty.

Styles of Motors

The motor and speeds are furnished according to the character of the work required of the vehicle. Where a fairly high speed is desired, a compound wound motor is furnished, so that by pressing a button with the foot, the shunt is opened and a maximum speed obtained. Ordinarily there are two speeds drawing ten and twenty volts from the battery.

There is but one speed controlling handle which also operates a powerful hand brake on the motor shaft. Ordinarily this is sufficient to stop the carriage in its own length when traveling at full speed. There is also an auxiliary brake operating on the rear axle at the differential which is controlled by a foot lever.

Structural Details

The motor is suspended from the body of the vehicle slightly forward of the center and it is entirely covered by a wooden case which is easily removable and so attached that it will not rattle. The chain is from the motor shaft to the center of the rear axle, the rear sprocket is contained in an arched frame and is combined with the differential. Chain adjustment is effected by an adjustable rod which slightly moves the motor backward or forward. The frame is strong, yet flexible, being made of steel tubing with hickory side bars. The body and all parts are carried by springs, making a carriage which is extremely easy riding. The wheel hubs and spokes are made of a composition metal which will

not rust or tarnish and which is said to be tougher than steel; thus overcoming, it is claimed, the only objection to the wire wheel. Any style of high grade pneumatic tires are furnished. The wheels are twenty-eight inches in diameter. Baker ball bearings are used throughout. The vehicle is furnished with incandescent headlight and electric push button bell.

THE BAKER ELECTRIC RUNABOUT.

Has an Open Box

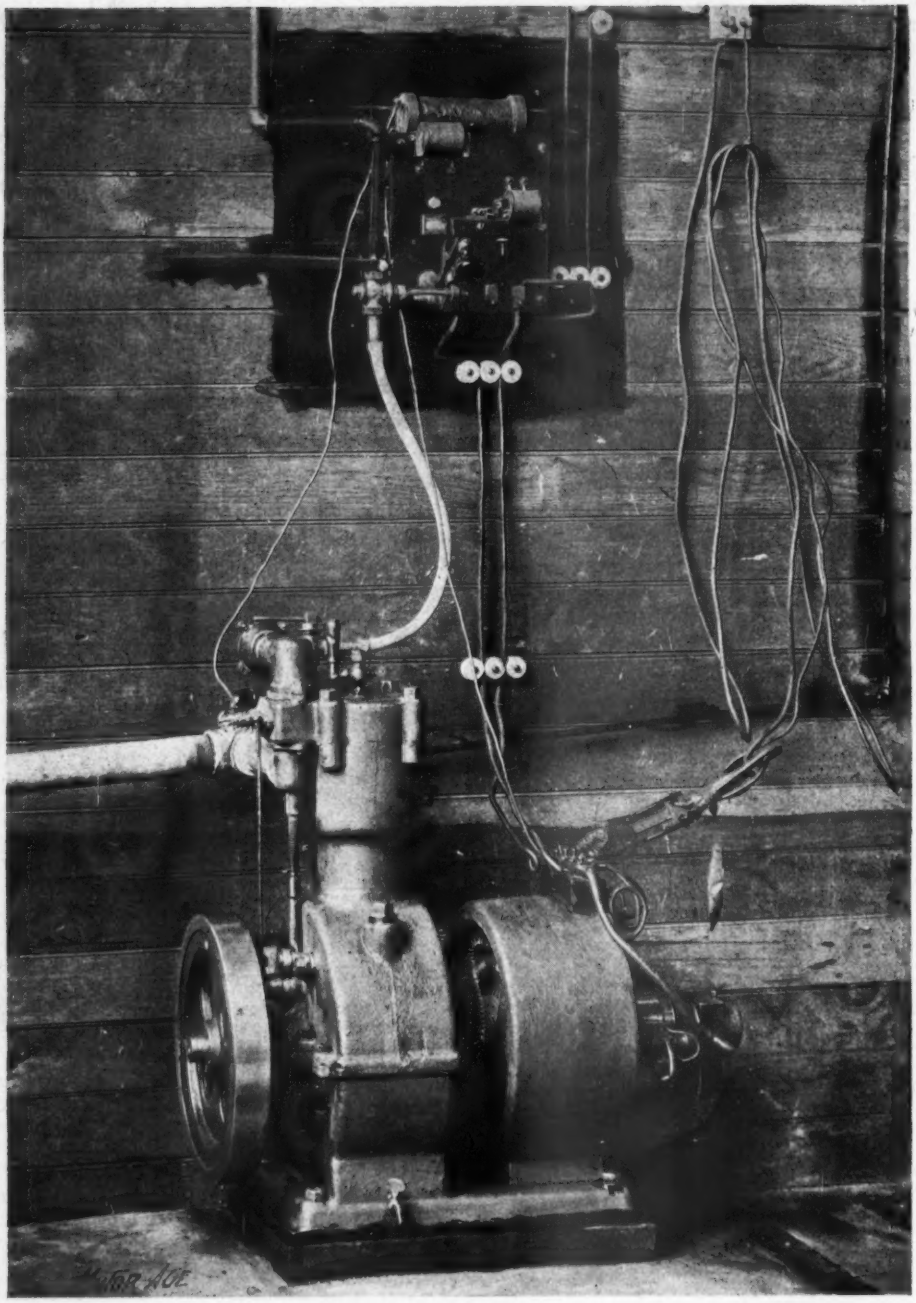
A standard Weston combined volt and ammeter is furnished and the vehicle will not be sold without this indicator. In general appearance this vehicle resembles closely an ordinary small piano box buggy. The batteries are wholly under the seat so that the rear of the box is open as in an ordinary vehicle.

For charging batteries, the Baker company advocates and is prepared to furnish the automatic gas engine plant manufactured by E. B. Merriam of Cleveland and described on another page.

The Baker vehicle will be exhibited at the New York automobile exhibition.

THE MERRIAM CHARGING PLANT

To those who have had more or less experience with electric automobiles, the greatest objection to this type is not the fact that the batteries require frequent recharging but that the necessary current is not always readily obtainable. In fact, even in large cities, unless one lives near the business center where the proper direct current is in general use, it has been almost impossible to install a private plant. A plant which is automatic in action and cut off and which can be installed practically any place at small cost will fill a long felt want and E. B.



MERRIAM ELECTRIC VEHICLE CHARGING PLANT.

Merriam, Century Building, Cleveland, designer of the plant illustrated herewith, believes he has filled this want.

The plant is composed of a four-cycle gas engine directly connected to a generator of ½ kilowott capacity. The entire action of the plant is automatic, as it is only necessary to insert the plug in the vehicle, and turn a switch. When the batteries are filled a switch drops

automatically and the machines stop. Several novel features in both gas engine and dynamo construction are shown in the makeup of this plant. For instance, the usual method of starting the gas engine by turning a crank is dispensed with. After months of practical work it has been found that the amount of electrical energy remaining in a carriage after a run is always sufficient to start the electrical machine as a motor, thus giving the necessary starting impulse to the gas engine.

No Sparking Battery

The usual batteries for sparking purposes are also dispensed with in connection with this gas engine; the current necessary for sparking being taken directly from the field windings of the electrical machine and the method works perfectly whether it is running as a motor or as a dynamo. In the illustration a wire will be seen leading from the binding post on the dynamo to the spark coil above; the circuit being completed by a connecting link from the dynamo fields to the body of the gas engine. A primary make and break spark is used for sparking, and asbestos washers are used for insulation on the spark plug. The engine has a uniform speed of 1,800 revolutions per minute, and, when properly handled, it is claimed it never misses a charge.

The plant illustrated utilizes coal gas, the supply and the mixture being regulated by a stop cock. When the batteries are filled the electric switch drops, at the same time turning a second cock on the fuel supply, thus stopping the engine. In case of any break in the connections or accident to the generator, the engine is instantly stopped by the same method. Where coal gas is not obtainable, gasolene may be substituted and any good carburettor may be applied to the engine without change. In the plant described a constant stream of city water passes through the water jacket around the cylinder and out through the exhaust pipe and muffler. The pipe from the muffler leads out side of the building and into the eaves pipe so there is not the slightest noise or indication of exhaust. If necessary a water tank with stationary supply of water can be utilized for cooling purposes.

Minor Details

The engine is well built and designed for simplicity. The valves may be easily removed for cleaning or repairs. The secondary gear and main bearings are of hardened phosphor bronze and may be easily removed. No oil cups are used; the cylinder, main bearing and connecting rod are all oiled from the crank chamber which requires but little care. An advantageous feature of the plant is that it occupies only a very small space; the base being less than two feet and the height at the highest point of the engine, twenty-seven inches. The total weight is about 300 pounds. It is claimed by the designer that the current furnished from this plant is even more economical than that secured from a lighting station, as the cost of operating the gas engine amounts to but a trifle.

THE PEOPLE'S AUTOMOBILE CO.

The People's Automobile Co. of Cleveland, organized some time ago with a capital stock of $50,000, is preparing to market the gasolene vehicle shown herewith. The company has somewhat of a history. It was organized as the result of the street railway men's strike in Cleveland, the aim of the project being to operate automobile busses in opposition to the street railways of the city. The railway men failed to co-operate financially, so a number of private individuals took up the project and a contract was placed with the Kohl & Gaeth Motor Co. of this city for a large automobile bus. The machine was practically completed some time ago and was turned over to the People's company, but it

did not operate satisfactorily, so it has been practically rebuilt under the supervision of Paul Gaeth, formerly with the original manufacturer. It will be placed in operation in the near future and promises to be such a success that several more will be constructed. The vehicle is propelled by a 40-horsepower, single-cylinder, gasolene motor, and will seat thirty-six people.

The company also proposes to manufacture small vehicles and has a number of the style shown in process of construction. This carriage weighs 565 pounds and will sell at $650. It is equipped with a single-cylinder, four-cycle motor 4x5 inches, developing 2½-horsepower at normal speed. The speed of the motor is controlled by a throttle valve on the mixture as it enters the cylinder and it can be controlled at from 150 to 1,000 revolutions per minute by pressing a lever on the floor of the body. There is but a single speed controlling handle. Two speeds are obtained by engaging sprocket wheels and chains on a secondary shaft and a backing speed is obtained by a back gear on the engine shaft operated by a clutch and band. The vehicle is driven by chain and sprockets to the center of the rear axle, the rear sprocket and differential being integral. The speed of the vehicle is from five to twenty-five miles an hour. The weight of the motor complete is 200 pounds, the flywheel weighing 100 pounds. Two and one-half gallons of gasolene are carried, giving, it is claimed, a radius of 100 miles' travel. Seven gallons of water are carried, and the water tank is provided with radiating flanges and is placed in such a position that it is open to a constant current of air. The sparking device is of the make and break type, current being furnished by a Nunngesser battery.

PEOPLE'S AUTOMOBILE CO.'S GASOLENE VEHICLE.

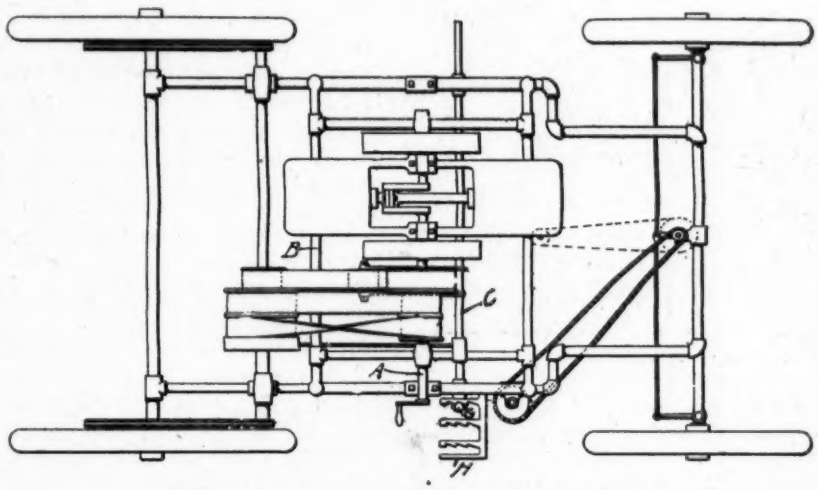
WEEKLY PATENT OFFICE BUDGET

FOUR INTERESTING INVENTIONS INCLUDED IN THE LAST BATCH TURNED OUT OF THE PATENT OFFICE—THE FIELDS OF ELECTRIC, STEAM AND GASOLENE VEHICLE PROPULSION TOUCHED BY THEM

The motor-vehicle patents of the week may be sucmarized as follows:

Flat belt transmission device for furnishing two forward and one reverse speed; friction acting variable speed mechanism for use in electric vehicle and intended to operate interdependently with the electric circuit controlling mechanism; system of exhaust flues for steam vehicle whereby the products of combustion and the dead steam are disposed of in a convenient manner; apparatus for lowering the temperature of the cooling water in an internal combustion vehicle motor, and two methods, by the same inventor, for securing solid rubber vehicle tires to the wheel felloes.

The complete specifications, claims and drawings of any patents will be furnished by the patent office at Washington for five cents each. Persons sending for patents should address their letters "Commissioner of Patents, Washington, D. C.," and should enclose five cents for each copy of every patent desired, and should state the numbers and dates of the patents. Each patent described in The Motor Age is preceded by its number and date. The date of any patent described in earlier issues, in which dates were not given, can be ascertained by deducting nine days from the date of the paper in which it was described.



DYER'S BELT DRIVE AND SPEED CHANGE DEVICE.

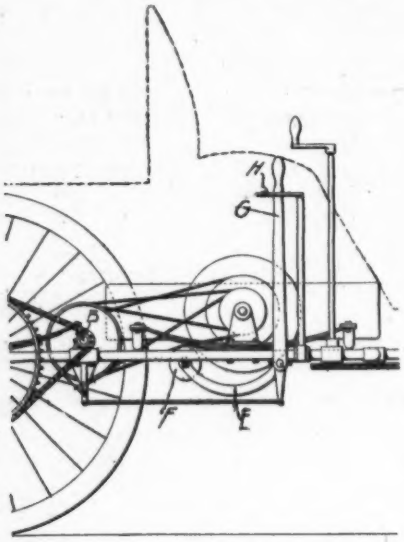
DYER'S BELT DRIVE

Letters patent No. 657,650, dated September 11, 1900, to Leonard H. Dyer, Washington, D. C., assignor of one-fourth to Frank L. Dyer, Montclair, N. J.; power transmission and speed changing device. Fifteen claims allowed.

This invention is comprised mainly of a power transmission device furnishing speed change and reverse motion through the medium of a loose belt driving mechanism. Loose belt drive with tightener pulley is an old scheme in other forms of machinery than motor-vehicles, and has never been considered very efficient, although it was used to considerable ex-

tent before the days of the friction clutch, it having been employed on the old Bullock printing press as early as 1863.

The Dyer loose-belt drive is arranged for use in connection with a gasolene motor of the double opposed cylinder



Dyer's Transmission Device.

type placed longitudinally on an independent frame which is spring-mounted midway of the vehicle running gear. The motor shaft A projects laterally to one side of the vehicle for convenient disposition of the starting crank. On this shaft are three tight-fastened pulleys, comprising a pair one of which is larger than the other, and a third one which is used for reversing drive. On the counter-shaft B are three corresponding pulleys and each set of pulleys is furnished with a leather belt, that of the reverse-drive pulleys being crossed. Within the pulley cone on the counter-shaft is a differential gear. The rear wheels are mounted independently and are driven by sprocket and chain connections from the counter-shaft.

Supported in yokes underneath the running gear is a slidable cross shaft C on which are mounted loosely, but unslidably, sockets from which extend backward arms E, bearing between their extremities the "jockey" pulley F. The operator's lever G is rigidly secured to the end of the shaft C and by means of it the said shaft may be turned to free the "jockey" pulley from whichever of the several belts it has been engaging, and then moved laterally in relation to the vehicle to bring the pulley into tightening engagement with another of the belts. In order that this movement may be gaged correctly the triple-space guide H is provided, which is formed with three notches in each recess.

After the operator's lever G has been moved from one recess to another it may be locked into any of the three notches according to the degree of belt tension desired, it being specified by the inventor that one object of the invention is to provide intermediate change of speed by allowing the driving belt in use at any time to slacken sufficiently to slip on the pulleys. This is an impracticable addition to the invention, for in short belt runs such as incorporated here the tension must at all times be extremely great if the belt will drive at all.

The inventor shows a modification in which the power transmission is controlled by the steering lever. The running gear used in this connection is substantially rectangular in outline and is connected to the front axle tree by a horizontal pivot which allows the axle and wheels to oscillate that the wheels may accommodate themselves to irregular road surfaces.

ELECTRIC POWER CONTROL

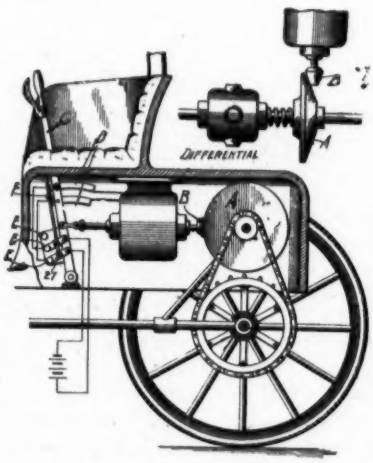
Letters patent No. 657,899, dated September 11, 1900, to Clyde J. Coleman, Chicago, assignor to Thomas J. Ryan, New York City; current controller and transmission device for electric vehicles. Six claims allowed.

Mr. Coleman's patent presents a variable speed device to be used in connection with an electric machine and is thus novel. It is the purpose of this invention to so combine the operation of the variable transmission gear in unison with the regulation of the motor current that the two act interdependently to reduce the velocity of the machine

to a very low minimum, arrangement being made whereby when the torque of the motor is brought to a minimum point the speed gear will also be at its lowest velocity running point.

The rear wheels are driven from a counter shaft above the wheel shaft and which is supplied with suitable differential. Each wheel has independent chain and sprocket driving connection. Centrally splined upon the counter shaft is a friction disk A of flat conical shape. Engaging this is a small friction cone B rigidly attached to the end of a rod slidably inserted within a non-circular bore through the armature shaft. The forward end of this rod is connected by a suitable joint to the operating lever C. The disk A is backed by a stout coil spring. By moving the cone B backward and forward by means of the lever C its radial and hence its driving speed relation with the disk A may be changed, and the coil spring keeps the disk at all times in proper contact with the cone.

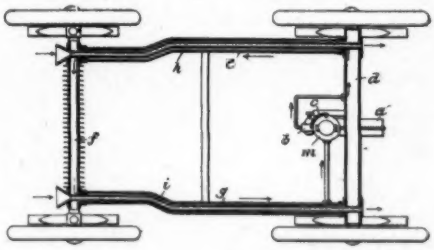
The current controller comprises a pair of segmental contact plates D D and a



Coleman's Electric Vehicle Controller.

pair of insulated contacts carried by the handle C. The circuit, by this construction, will be maintained at all times except when the lever is at its extreme forward position when a breakage of the current is effected.

The reversing switch for obtaining backward drive comprises three insulated contact points, E E E, arranged upon a side extension of the lever C, and a pair of contact links pivoted at one end to the main lever and adapted to contact alternately with different pairs of the three contact points. A link and hand latch form the operator's means of controlling the reversing device. A



Vorreiter's Cooling Apparatus.

laterally projecting pin or lug F on the connecting link is adapted to engage either the upper or the lower surface of one of the segmental contact plates to hold the current reversing mechanism in either of its positions in a positive manner except when the lever C is advanced to its extreme forward point, thus freeing the lug F from its engagement with the plate. This arrangement, as is obvious, prevents a change from forward to reverse drive, or vice versa, being made except when the speed gear of vehicle is at its minimum velocity point and the motor circuit has been broken.

FORCED COOLING DRAFT

Letters patent No. 657,684, dated September 11, 1900, to Ansbert E. Vorreiter, Aix-la-Chapelle, Germany; cooling apparatus for motor-vehicles. One claim allowed.

Forced cooling circulation to assist natural influences in lowering the temperature of the cooling water in internal combustion motors is becoming a popular topic of invention in Europe. This invention by a German aims to improve upon previous devices of the kind by dispensing with special apparatus requiring additional room and adding to the weight of the vehicle, and this obviation of distinct appurtenances is attained by

incorporating the cooling device in the main frame of the vehicle.

In the drawing, a is the motor, arranged in the rear part of the carriage, which by friction actuates a rotary pump, sucking up the water at c and forcing it into the water reservoir d, which forms at the same time the rear part of the frame. From the reservoir d the water flows in the direction indicated by the arrows into the branch pipe e at the right hand and from thence into the fore frame pipe f, then into the branch pipe at the left hand g, whereupon the water flows back through the water jacket of the cylinder m of the motor to the pump.

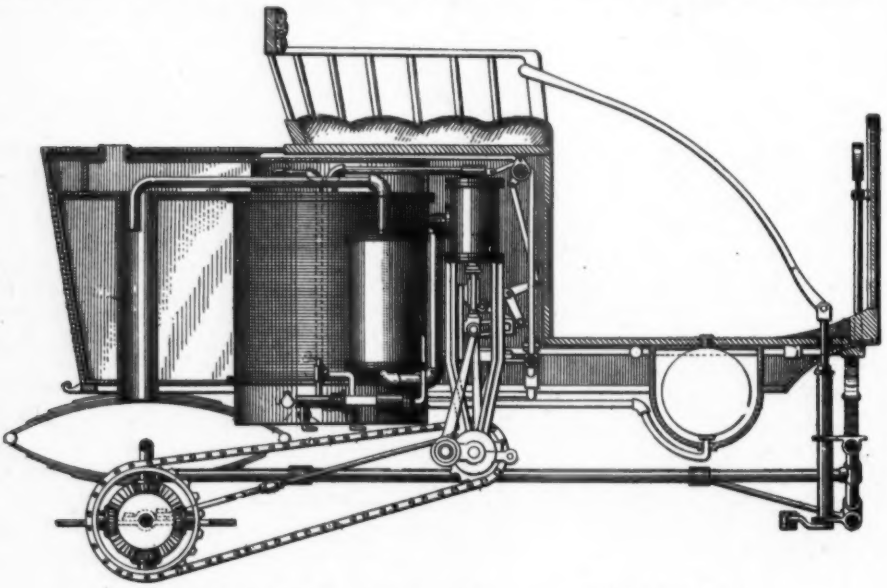
On this long way the water gives off its heat to the outer atmosphere, with which the tubes are throughout in contact. In order to increase still considerably the transmission of heat, there are provided in the interior of the two branch pipes e and g, two pipes h and i, and for facilitating the entrance of air they are provided with funnels. When the carriage is running, an air current is forced, in the direction indicated by the double arrows, through either of the pipes h and i, the direction of the air current in the pipe h being contrary to that of the water, while the air current in the pipe i has the same direction as the water.

BOILER FLUE ARRANGEMENT

Letters patent No. 657,711, dated September 11, 1900, to Francis E. Stanley and Freelan O. Stanley, Newton, Mass., assignors to the Stanley Automobile Co., New York City; steam vehicle. Five claims allowed.

The principal feature of this invention is the arrangement of the exhaust flues of a steam driven vehicle of the popular type. Above the boiler and inclosed within the body of the vehicle is a hood which serves to convey to the rear, and away from proximity to the seat, the products of combustion. This hood has two flues, one extending upward, preferably at a distance from the seat, and another extending downward.

When the apparatus is at rest and the flame of the burner reduced, the up flue affords a natural upward draft that will insure the maintenance of the reduced flame. When the apparatus is in motion the exhaust steam is directed by the exhaust pipe from the muffler downward through the other flue into the roadway.



STANLEYS' STEAM BOILER HOOD AND EXHAUST FLUES.

This disposition of the exhaust gases, smoke, steam, oil, etc., prevents injury to the clothing, and the discomfort of the passengers resulting when the said matters are projected upward, and in many instances so disposes of the smoke, if any, and steam, that they are not perceptible. This arises in part from the fact that the air can pass downward from the top flue into the under flue and so condenses the steam and cools the gases.

NEWS OF THE MOTOR INDUSTRY

WASHINGTON TRADE NEWS

Washington, D. C., Sept. 17.—Firm in the belief that the automobile business is today holding out more and brighter prospects to those seeking to engage in a profitable enterprise than any other, and having secured the assets, business, and agencies of the Orient Cycle Co., of this city, centrally located, and now actively in the field, the Motor Vehicle & Cycle Co., of Washington, is about to resolve itself into a stock company under the laws of Virginia, with an authorized capital of $50,000, divided into 5,000 shares of $10 par value, for the purpose of buying, renting, selling, and repairing self-moving vehicles and bicycles of various types. It is the desire and aim of the company to sell at least $30,000 worth of stock to small buyers, and, as far as possible, among the well-known bicycle riders here, the purpose being to scatter the stock among several hundred men, thereby securing their co-operation in advancing the company's business and affording extensive publicity to the enterprise.

The new company has obtained the agency for the goods manufactured by the Riker Motor Vehicle Co., and the Waltham Mfg. Co. Negotiations are also well under way with three of the leading manufacturers of steam-driven vehicles for the agency for this type of machine.

The general manager of the new company is F. P. Libbey, who has been connected with the bicycle trade of Washington for a number of years, and is well known. The board of directors is made up of men who stand high in the local business world, and includes F. C. Stevens, president of the Riker Motor Vehicle Co., H. M. Byllesby, vice president of the same company, H. D. Mirick and Gen. Geo. H. Harries, treasurer and vice president, respectively, of the Washington Traction & Electric Co. The company is temporarily located at 727 Fourteenth Street, but will shortly secure larger and better quarters.

Arrangements have been concluded whereby the local Pope branch of the American Bicycle Co., will handle the Waverly and Crescent lines of motor vehicles. The Pope salesroom on Fourteenth Street is well adapted to the purpose of showing automobiles, being one of the largest and finest equipped bicycle houses south of New York.

SYRACUSE TRADE NOTES

Syracuse, Sept. 15.—The I. A. Weston Co., which is showing a line of automobile hubs and complete wheels, is making plans to take up the manufacture of motor vehicle parts on an extensive scale.

The New York Automobile Co. has two gasolene wagons on the road. Their principal feature is that they start without the use of a crank or lever, but with a throttle valve. At a meeting to be held about Oct. 1 complete plans for the development of the company's projects will be determined upon.

The Brown-Lipe Gear Co., the excellence of whose product is well-known, is making special differential and trans-

mission gears for the automobile trade.

Archie Hughes, who has been agent for the Barnes cycles in this city and has represented the company on the road, is open for an agency for some first-class motor vehicle.

SAGER'S MOTOCYCLE FRAME

Rochester, Sept. 15.—George Sager, the inventor, has taken out letters patent for a new motocycle frame. Recognizing the desirability of bringing his motor as low as possible to secure easy steering in riding he has designed a frame, in which the lower rear forks take a downward then upward course leading from the crank hanger to the rear wheel. The forks are sufficiently long to allow the motor to be placed in the space between the rear wheel and seat-mast. The dropping of the forks enables him to place his motor so that the weight of the fly wheels in the motor is below the hub lines. He is now negotiating with Chicago capital to form a large company.

Incidentally the Sager Mfg. Co. is experimenting with a view to perfecting its saddles and seats for motocycles. When this line is completed the trade will be surprised at the thoroughness of its detail.

UTICA MANUFACTURING NOTES

Utica, Sept. 15.—The Weston-Mott Co. reports working overtime in its specialty of wire wheels for vehicles and that fully fifty per cent of its orders come from the automobile trade.

D. B. Smith is experimenting with a steam carriage using a rotary engine. Exceptional results are expected. He anticipates having a carriage on the road by Nov. 1.

A STEAM VEHICLE GEAR CASE

Cleveland, September 17.—Frank Lamkin, agent for the Mobile steam vehicle in this city, has made application for a patent for a gear case for steam vehicles which should prove a valuable accessory for any type of carriage using a chain drive. Mr. Lamkin has had considerable experience in cross country runs and he claims that a gear case, covering the gears of the differential, and link motion of the engine as well as the chain, is practically indispensible, as he has found, that, where the roads are dusty or muddy, a large portion of the power is lost through these parts becoming clogged, to say nothing of the excessive wear. The case mentioned is made of sheet metal and covers all the exposed parts perfectly. The joints and the portions that are attached to the frame are fitted with rubber washers so that there can be no noise or vibration. The side plates and rear portion covering the sprocket and differential, may be quickly removed for inspection of these parts. The case will be placed on the market in the near future and thus far every owner of a steam carriage who has seen the device, has ordered one.

AUTO TIRE REPAIRS

Automobilists are beginning to learn, says the N. Y. Sun, for themselves something new to them relative to pneumatic tires. According to repair shop men there is a large percentage of punctured tires being brought in on autos. In this respect the lot of the autofan is not a happy one. How natural it was for the automobile business to fall into the hands of the bicycle trade and how natural it will be for it to remain there is illustrated by the fact that a bicycle shop is the first place an autoist seeks when he has a punctured tire or when a part of the metal work breaks. The bicycle men have the tools and the "know how" and the carriage men have not. Autoists should, however, have some knowledge of what is required in repairing big pneumatic tires in order that they may not repeat the experience of a New York physician. A big nail punctured his tire and he paid $10 to have it fixed. The repair lasted only a few days, the plug blowing out because the fabric beneath the rubber was not sewed up. A puncture in one of the big tires almost invariably breaks the meshes of the fabric and this has to be caught up around the hole and treated to "buttonhole stitching" in order to have a plug hold fast. Again some

repair men of the hasty, careless kind endeavor to vulcanize an automobile tire in the same way they do a small bicycle tire. This cannot be done successfully. On the big tires the patch should be vulcanized with the plug or the job does not hold. Autoists knowing these things will seek for shops where they are almost certain of the work being done properly. Undoubtedly all the repair men along the roads will learn the tricks of the new game in time, but meanwhile mistakes are vastly more expensive and annoying than in the case of bicycle repairs.

NEW LOCOS ARE POPULAR

Rochester, Sept. 15.—J. J. Mandory, of the Rochester Automobile Co., the Locomobile agency for this entire district, is meeting with great success in the placing of sub-agencies. Many of the users of the old models are exchanging them for the new one-seated and two-seated carriages. Users of automobiles are as frequent in their changes of models as were bicycle riders in the days of the equally rapid development of the bicycle.

BAKER REPORT UNTRUE

Hartford, Sept. 15.—The report that H. C. Baker had interested New London capital and expected to manufacture motor vehicles in that city is untrue. It had its origin in the desire of a promoter to gain notoriety.

THE FOSTER RUNABOUT

Rochester, Sept. 17.—Foster & Co. report a continued demand for their piano box runabouts. There has been considerable delay in turning them out in large quantities, but now the firm is rapidly getting into a position to produce at least one a day.

NEW GASOLENE ENGINE

Rochester, Sept. 17.—The Apex Wheel Co. has had running recently a gasolene engine of entirely new type, which it has been developing for a year. Several of them are being put in frames for a test on the road.

FISK TIRES FOR AUTOS

Chicopee Falls, Mass., Sept. 15.—The Fisk Rubber Co. is making arrangements for the extensive production of tires for automobiles and carriages.

NOTES OF THE TRADE

The Automobile Construction Co. of Philadelphia has been incorporated under New Jersey laws with an authorized capital of $5,000.

The Waltham Motor Carriage Co. of Waltham, Mass., has been incorporated under Maine laws, with an authorized capital stock of $300,000.

The Du Bois Automobile Agency of New York has been incorporated under the laws of New Jersey with an authorized capital stock of $100,000.

The Rambler retail branch of the American Bicycle Co., at Flatbush and Eighth avenues, Brooklyn, is to be turned into a motor-vehicle emporium.

Reports from Connellsville, Pa., indicate that the Baldwin Automobile Works are more than busy and are turning out vehicles rapidly. Many inquiries have come from foreign countries, indicating the esteem in which American vehicles are held abroad.

CLIMBS PIKE'S PEAK

A Denver dispatch tells how John Brisben Walker climbed Pike's Peak, to the height of 11,000 feet. He was accompanied by his son. The mountain has an elevation of 14,147 feet above the sea level. Years ago there was a stage line to the summit of the peak, but, after the building of the cog railroad to the summit, the road was abandoned and became badly washed out. It must have been repaired recently to make the ascent to even 11,000 feet possible. The writer made the descent four years ago, on a bicycle, and at that time it would have been utterly impossible to drive a four wheeled vehicle of any description over the road, owing to its washed-out condition. The bicycle used was equipped with two band brakes. After a small portion of the trip had been made, the brake levers were tied down with handkerchiefs and one foot used as a brake on the front tire, a considerable portion of the distance. Even with these precautions the ride was a hair-raising experience. The ascent was made on the cog railroad.

In speaking of his trip, Mr. Walker is reported to have said:

"Everybody in Manitou whom I know told me that it would be foolish to attempt to ascend Pike's Peak in an automobile, but I was determined to make the trip, if possible. We had comparatively little difficulty for the first mile. The road was in good condition and the auto had no trouble in going up the steep grade. When up only two miles a tire was punctured on a sharp rock, but we soon fixed it and went on. As we went further up the road became rough and at times almost impassable, but one of us would get out and remove the rocks in the road. In this way we got along.

"When we had got up about 8,000 feet we encountered some very rough road, so difficult that I was almost tempted to quit, but my son urged me to go on and so we did. We kept on up to timber line, meeting with rougher roads every foot, almost, and at timber line we saw that it would be impossible to go further. Our trip back was exhilerating. It was a toboggan slide. We simply flew, going around curves with a dash and sometimes sliding over dangerously near to the edge of the road, but we got back to Manitou without an accident of any kind.

"I made the trip as a test of an automobile. I have always said that a steam automobile such as I have could go up any grade. Now I know that I was right. We had absolutely no trouble and we traveled over some of the roughest stretches of road that I have ever seen."

VANDERBILT VS. DAVIS

Newport, Sept. 16.—Negotiations are under way for a race between W. K. Vanderbilt, Jr.'s automobile and a steam machine, but there is some uncertainty as to its coming to a head. The day before the races last week the steam machine went over the five-mile course in seven minutes and thirty-five seconds, which is one minute and nineteen seconds better than the time made by Mr. Vanderbilt. The steam machine did not go the course in the final that day, meeting with an accident at the start, but the owners are confident that it would have made a good showing, and therefore are trying to arrange a race.

ESSEX COUNTY CLUB OFFICERS

Montclair, Sept. 14.—The Essex County Automobile Club has elected the following officers: President, Kirk Brown, Montclair; vice-president, W. J. Stewart, Newark; secretary, Dr. H. Power, Upper Montclair; treasurer, H. W. Whipple, East Orange. Among the purposes of the organization are the holding of runs, mapping of routes, the promotion of good roads, and particularly of exerting influence for reasonable legislation

governing the use of automobiles, and the defence of its members when their rights are assailed. The first action taken by the club was the offering of a reward of $50 for information leading to the conviction of the persons who maliciously injured Dr. Power's automobile on the evening of Sept. 6.

STRANDED FOR WANT OF OIL

Automobilists flocked to the Trouville and Deauville coast in such numbers that the supply of oil essential to motors began to run short in the district, and prices mounted to fifteen and twenty cents a quart, says a French dispatch. Then the supply ran out altogether. Local dealers made applications to the wholesale trade for further provision, but in vain. Automobilism is rapidly absorbing all the petroleum in France. Meanwhile hundreds of motormen are stranded along the Normandy coast in despair at being unable to use brand-new machines of the latest pattern, and anxiously wondering how they will get back to Paris again.

TRAINING FOR TRENTON RACES

Philadelphia, Sept. 17.—Bareheaded and shirt-waisted (that seems to be a sort of fashion with Quaker City automobilists nowadays) "Bob" McCurdy, "Billy" Taxis, Louis Kolb and "Charley" Wright (any or all of them) may be seen early in the morning and late in the afternoon on the good roads on the outskirts of the city "training" for the Trenton races. McCurdy has for a team mate Mr. Meyer, who has been sent on from the Mobile factory to assist him, and between them they manage to get quite a lot of speed out of the racing Mobile with which they hope to land a prize or two next Monday at the Jersey capital. Long-sustained speed trials on the suburban roads necessarily depend upon whether or not the mounted policemen are patrolling their districts faithfully, and every time a bluecoat heaves in sight "Bob" must perforce take in a few reefs lest the pair of them with their "mobe" be carted off to a dungeon vile for fracturing the city's speed ordinance. Taxis also has a Mobile, and if it comes to a pinch where the taking of a chance will win a race, "Billy" will take it. He is so reckless, apparently, that he has his clubmates in the Century Wheelmen in such a state of mind that not one of them will go out with him, and yet he is conceded to be the most skillful "auto" operator in this city. Like McCurdy, he thoroughly understands his machine, and can make minor repairs in a jiffy. If anything goes wrong a sort of instinct seems to tell him where and what it is. If their mounts possess the speed, both these lever manipulators will probably be heard from in next Monday's races. It is certainly to be doubted whether any Gotham operator of an American-built vehicle will give either of them his dust.

Although there will be no attempt at a race from this city to Trenton on the 24th, quite a number of local motorists will travel to the Jersey capital to take in the races and inspect the exhibits in the "auto" show.

NEWS FROM THE CAPITAL

Washington, Sept. 17.—The attention of the authorities was recently called to a flagrant case of overcharging on the part of an operator or a public automobile. A warrant for the man was applied for, but the prosecuting attorney declined to issue it, for the reason that, in his judgment, a case of this character cannot be successfully prosecuted while the schedule of hack rates remains in its present shape. The schedule specifically prescribes rates for "one-horse" and "two-horse" vehicles, and clearly could not be held to apply to automobiles.

The district commissioners were advised by the district attorney a few months ago that automobiles operated for the conveyance of passengers for hire in the district are subject to the provisions of the license law existing, and that the municipal authorities are clothed with sufficient power to regulate the charges made by owners of such conveyances. The premises considered, the prosecuting attorney has recommended

that the present schedule be amended so as to include, in express terms, automobiles and other horseless vehicles, which are being operated so extensively for the transportation of passengers in this city, and it is believed that this action will be taken at once.

The American Autocarette Co. has established a line of electric vehicles to run on certain streets in this city. The cars are roomy and comfortable, and can move at the rate of twelve miles an hour. This is said to be the first line of electric cars to be run without tracks that has been started in the United States, and the success of the venture will be watched with interest, not only by Washingtonians, but by people in other cities.

PETITION QUAKER PARK COMMISSIONERS

Philadelphia, Sept. 17.—True to their word, the officials of the Pennsylvania Automobile Club on Thursday last addressed a set of resolutions to the Fairmount Park Commissioners in which they ask for the opening of the entire system of park drives to automobilists under the same restrictions as now apply to drivers of horse-propelled vehicles. The Pennsylvanians—and local automobilists generally—are hopeful that the long and arduous struggle against the obstinacy of a small majority in the commission will be brought to a successful issue as a result of the past month's agitation. The resolution will come up for action at next Friday night's meeting of the commission, and local automobilists will be there in force to reinforce their written appeal by strong statements as to what they want and what they propose to give in return.

The resolutions call attention, among other things, to the class legislation which permits fractious horses to be driven anywhere in the park limits, but restricts the docile "auto" to a few outlying drives, and permits them to enter and leave the popular pleasure grounds at entrances which can be reached oftentimes only after a long pounding over poorly-laid Belgian blocks; to the care which has been uniformly exercised by Philadelphia's motorists in operating their machines since the self-propelled vehicle has become popularized; to the patent fact that the average Quaker City horse pays no more attention to an "auto" now than he does to a trolley car or a bicycle; to the fact that the majority of the local "autofans" are also "hippofans," and never have or never will take chances which might result in the frightening of a horse. These and numerous other strong points, it is hoped, will cause the sapient commissioners to see things in a proper light, and take down the bars which at present detract so much from the pleasure of motoring in the park.

THE AUTO AND ROAD REFORM

The advent of the automobile as a popular means of transportation will bring about a great reform in road construction. Better roads will become necessary, but the cost of keeping in repair will be very much reduced. Roads will be neither so dusty nor so dirty, for the wear and tear on them will be much less than under present conditions.

The bicycle has done much to improve the roadways. It promoted a spirit of improvement that has been felt far and wide, and the good roads movement has derived great impetus from the interest taken in the subject by wheelmen. But the uses of the bicycle are not extended enough nor sufficiently utilitarian to effect a genuine revolution with respect to road making. It was more generally used for pleasure than for profit, and it did not appreciably diminish the use of wheeled vehicles.

It is different with the automobile. It bids fair to supersede all vehicles drawn by horses. While it is applicable to the uses of pleasure, it distinctly meets the needs of utility. As a method of transportation, it is so far superior to the horse-drawn vehicle that there is no comparison. However, it cannot be made generally available until the roads are made smooth and are kept clear of obstructions and chuck holes. As the safety and utility of the automobile become more demonstrable, the necessity for improving the roads to permit of

their general use will be made apparent. Public interest will be aroused on the subject, and roadmaking will be conducted on scientific lines to meet certain requirements.

The use of the automobile almost necessitates the use of the rubber tire. This in turn renders necessary smooth, clear roadways. The absence of horses and the narrow iron tire will reduce the wear and tear to a minimum. Thus one invention brings others in its train, and the application thereof furnishes an impelling motive for reforms that have cried in vain for attention.

THE RIGHTS OF THE AUTOMOBILE

The Brooklyn Eagle says, editorially: We sometimes gibe at the Europeans for their slowness in adopting reforms, or at least changes that in America are accepted with a rush. We make fun of the Englishman for his consent to ride in stuffy little railway carriages, rubbing knees with a stranger and unable, if in the middle of a compartment, to open or close a window. We deride the continental hotel keepers who send their guests to their rooms with candles and charge them for the same, as well as for service and soap. We cast contempt on a nation of cooks because it has never learned to make pumpkin pie and doughnuts, and serves claret at the sewing circle instead of tea. Yet we need not look so far away. The same conservatism that opposes change, which, to tell the truth is not needfully reform, can be found right here in our own country, and much as we have said of European railways, street cars, stages and other means of transportation, it is that one particular of traffic that arouses the fiercest opposition. Steam as a locomotive impulse was violently opposed in this country. Street cars were opposed later. When velocipedes were invented, just after the war, there was a loud outbreak of warnings and objections, legal, medical and official, and in view of the bulk and clumsiness of the vehicle and badness of the streets and roads these objections were right enough.

The bicycle arriving some years after, met vehement opposition. The arrest of a rider in Manhattan for using one in the public streets is remembered, and after the machine had come into more general use it was not allowed in the parks for a long time. And now the automobile is taking its turn. It is to keep out of the parks and driveways; it is to run only at a prescribed rate of speed; it is to yield precedence to horses wherever it meets them. This will not last. If the automobile has safe and staying qualities its use will become so general that owners will have the same rights in the highways that other riders and drivers enjoy. A typical instance of opposition has been afforded in the action of the trustees of Hempstead, who limited the speed of automobiles in that village to six miles an hour, and this was to be reduced to four miles an hour when passing wagons. Six miles an hour is a pace possible to a "heel and toe" walker, and there is no advantage in riding in a machine propelled vehicle if a better speed cannot be obtained. Through the insistence of one of the residents, however, the trustees have modified their original order and automobiles may now pass through the streets at nearly the pace of a trolley car, or ten miles an hour. Of course, a high speed in a settled region is unsafe and undesirable, not merely because it frightens horses, but because it endangers pedestrians. But ordinary rights in the use of the streets are not to be denied to owners of vehicles which are propelled by other than animal strength.

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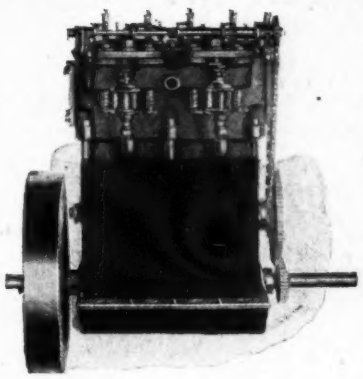

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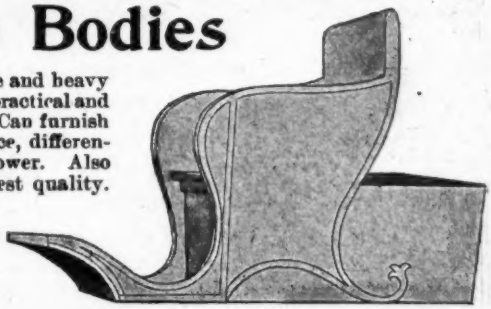

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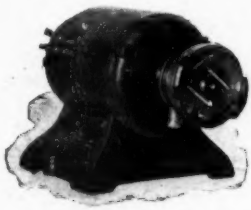

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